CITY GOVERNMENT.

[Entered as Second Class Matter at the Troy, N. Y. Post Office.]

VOL. 7, NO. 4. OCTOBER, 1899. $3 A YEAR.

CITY GOVERNMENT.

Devoted to all Departments of City Work

PUBLISHED MONTHLY BY

CITY GOVERNMENT PUBLISHING CO.

3 Western Union Bldg., . TROY, N. Y.

NEW YORK OFFICES, . 111 Nassau St.

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City officials and friends of City Government visiting New York are cordially invited to make the office of City Government their headquarters during their stay in the city. Desks, stenographers and stationery are placed at their disposal, and their mail may be addressed in our care.

WANTED—A few copies of City Government of November, 1896, for which 25 cents a copy will be allowed. City Government Publishing Co., Troy, N. Y.

AMONG OUR BEST FRIENDS.

It is a pleasing thing for any periodical to say that among its very best friends are its regular advertising patrons. "City Government" can say this—and say it truthfully. We receive many kind letters from our advertisers, expressing their appreciation of our services. One of these letters, received from the Harris Safety Co., of New York, last week, says:

"We beg the liberty of complimenting you upon your work with our ad. in your issue of September. It is with appreciation that we testify to the value of your journal as a medium of advertising, and can cheerfully recommend same."

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A SUCCESSFUL ORGANIZATION.

After the recent convention of the League of American Municipalities at Syracuse no one can question the complete success of the organization. Never before, not even in Great Britain where municipal organizations flourish, has there been such a large gathering of earnest city officials for the purpose of discussing the important questions of civic government. The official register shows that there were present at the convention nearly 800 city officials—mayors, council members, city engineers and public works commissioners.

It is a most encouraging token of progressiveness in American municipal life to witness a gathering of this kind held, as it was, for the unselfish purpose of improving all branches of the public service. Every official who attended any of the sessions of this convention must have returned to his home better equipped for the public work he has been chosen by his people to perform for them. No man is so wise that he can not learn many things from others of his calling. At the Syracuse meeting the city official came in contact with many others of his calling, and the interchange of knowledge, ideas and experiences that was brought about by the contact is bound to make him a more valuable man in his public position.

THE RAMAPO WATER JOB.

The daily press of the entire country has so thoroughly exposed the New York Ramapo water job that it seems almost superfluous to even comment further upon it. To show its real character it is only necessary to take up a few of the vicious clauses of the contract.

For some time there has been a demand for increased pressure in the city mains, hence the contract agrees that the additional supply is to be delivered at a pressure at the place of delivery due to an elevation of 300 feet above mean tide. The present elevation of the distributing reservoir in New York is 119 feet, a casual reading, therefore, would suggest an increase in head of 181 feet, but a careful consideration of the facts will show that this head is entirely expended in over-coming frictional losses in the conduit due to the long distance of carrying, so that the proposed new water supply would simply flow into the existing city distributing reservoirs without any pressure whatever.

Again when it is understood that the city's interests are placed in the hands of one man, namely the commissioner of water supply, the rights given in clause 10 to modify, alter or amend hereafter as parties may deem desirable, might mulct the city in the future for double the extortionate price now demanded.

The price demanded is $5,000,000 per annum for 40 years service of 200,000,000 gallons per day. This amount capitalized at 3 per cent. will yield $166,666,666. The

commissioner of water supply, in arguing against city ownership, says that if the city build its own works it should provide for 600,000,000 gallons supply, which would involve the enormous issue of $70,000,000 worth of bonds, which he claims the city is not financially able to do, as this will greatly exceed the debt limit. But in making this statement he proves what an enormous steal the Ramapo job really is. On the water commissioner's own statement 600,000,000 gallons can be procured for $70,000,000, when the company want the city to pay $166,666,666 for 200,000,000 gallons, or in other words six prices for the water.

Yet another evidence of its corruption, which can be seen without the aid of experts, is the fact that the contract limits the city to 200,000,000 gallons per day, while the commissioner of water supply states that 600,000,000 gallons will probably be necessary long before the expiration of the contract. The city would then be at the mercy of the company, as it undoubtedly will be at the end of the forty-year contract.

The pretext that New York is urgently in need of additional water supply does not justify the serious consideration of this proposed hold-up.

CHRONIC SOUR GRAPES.

The Indianapolis engineering journal that as been fighting the League of American Municipalities for more than two years without making the slightest impression descends to the petty method of misrepresentation in reporting the Syracuse convention. Its report of the meeting says only about forty cities were represented and "most of the speakers whose names appeared on the program were not present." As a matter of fact nearly eighty cities were represented at the convention, although but forty had delegates in the hall at the time of the election. There were about twenty-five cities represented which, at the time of the convention, were not members of the League, but all of these have since taken membership on the recommendation of their officials who attended the meeting at Syracuse. Of the twenty-three gentlemen who were on the progrm to present papers, eighteen were in attendance and the other five sent their papers to the secretary. The Indianapolis periodical is evidently suffering with a case of chronic sour grapes.

NO DELEGATES, NO PROCEEDINGS.

Another short-sighted citizen has spoken and revealed his blissful ignorance. This time he speaks through the Mansfield, Ohio, "News," as follows:

> It is suggested that a file of the newspapers during the session of the League of American Municipalities will give a far more comprehensive review of what will be said and done at that convention than can be furnished by any committee sent to the convention at the expense of the tax payers.

This calls to mind the remark of Mayor Fiske of Mount Vernon, N. Y., in reply to the alderman who objected to sending a delegation to the Detroit convention last year. The alderman argued that it was a needless expense to send delegates, because the full benefits of the convention could be absorbed by the Mount Vernon officials by reading the book of the official proceedings. "If everybody reasoned as you do," remarked the mayor, "there would be no delegates at the convention to make proceedings for a book."

COST OF LIGHTS AT DETROIT.

The fourth annual report of the Public Lighting Commission of Detroit for the year ending June 30, 1899, has been issued, containing detailed statements of the condition, operation and expense of the municipal electric plant. The most interesting facts regarding the plant are briefly stated by President Ritter, as follows:

"As compared with the preceding year the street lighting has been increased from an average of 1,744 arc lights of 2,000 candle power each to 1,868 arc lights of 2,000 candle power each, and the electrical output from 3,281,615 kilowatt hours to 3,539,567 kilowatt hours, while the total cash expended for the operating and maintenance of the entire plant has been reduced from $99,713.18 to $96,665.03, bringing the cash outlay per arc light per year down from $51.85 to $46.46.

"The reduction of $3,048.15 in the exance was effected by saving $1,333.12 on stores and $1,715.03 on wages. The reduction of wages is due to the introduction on April 1, 1899, of longer burning carbons, permitting the Brush double penditures for operating and maintencarbon lamps to be trimmed on alternate days instead of daily, as prior to that date.

"To arrive at the approximate cost of an arc lamp to the city of Detroit the plan is followed that was adopted by the commission in its preceding report, that is, to compute the fixed charges on a basis of 3 per cent. on the investment for depreciation, of 4 per cent. on the investment for interest, and at the regular rate for taxes on the assessed value of $400,000 for lost taxes. The result of such computation is as folows:

"The present investment, less the amounts already charged off for depreciation, is $751,157.74. The assessed value of the plant is $400,000, and the rate of taxes for both city and county is $19.57 per $1,000.

Depreciation at 3 per cent. is $22,534.71.
Interest at 4 per cent. is $30,046.28.
Loss of taxes is $7 828.00.
A total of $60,408.99.

"The amount of fixed expense chargeable to arc lighting, proportioned on the electrical output, per arc light per annum, is:

Depreciation, $10.85.
Interest, $14.48.
Loss of taxes, $3.77.
Total fixed charges, $29.10.
Adding cash cost, $46.46.
Approximate cost to city is, $75.56.

"The method of computing the cost of an arc light which this commission adopted drew forth some criticism when it first appeared in our annual report of last year.

"The question of the best method of arriving at the real cost to the taxpayer of an arc light supplied by the plant owned and operated by the city of Detroit, was carefully considered before the result and the method by which it was reached was given to the public. In the effort to arrive at a correct solution of the question the commission was not embarrassed by any interests or influences which would operate to obscure the object of its investigation. Though the matter has since been the subject of reconsideration by the commission there has been discovered no sufficient reason to alter the conclusion or to change the method by which it was reached.

"It is not out of place to suggest that the question of cost to the public of an arc light ought to be determined independent of its relation to, or its bearing upon, the other and greater question of the expediency of municipal ownership of an electric lighting plant, which seems to be the one primarily in the minds of the critics. So far as the latter question is concerned, it is not open to this commission to discuss. It may be remarked, however, that the mere money cost of an arc light is not a satisfactory standard by which it may be absolutely determined.

"To a strict adherence to the policy which assured the working force of the commission a tenure of position dependent solely upon good behavior and the system of promotion in service according to merit which has always prevailed, the success which has thus far attended the administration of this department of the city's government, is mostly due. The commission has had occasion to call attention to the importance of this subject. The work of the past year confirms its belief, and has served to emphize the necessity of a rigid adherence to this principle."

SYRACUSE MUNICIPAL LODGING HOUSE.

On October 1 the second month of the existence of the municipal lodging house at Syracuse, N. Y., ended. Superintendent Hazeltine reports that during the two months 466 lodgers were accommodated, 195 in August and 271 in September. From these lodgers the city secured 1,864 hours work on the streets, which, at $1.50 per day, amounts to $394.50. Superintendent Hazletine says:

> I find nearly all of the unfortunate persons who seek the shelter of the municipal lodging house to be very intelligent people, who greatly appreciate the hospitality of the institution. Many tell me that though they are looked upon as tramps, while they are only out of work and trying to better their ondition, they are treated as tramps by those from whom they seek employment and are turned away with dagger looks. They are averse to crime, and not criminals, and are in no sense anything but poor unfortunates, who would earn an honest living if only given the chance. They are not burglars or thieves, they are not crooks nor vagabonds, but yet I wish the public to note the fact that since the installation of the municipal lodging house, and that during August and September, there has not been a single house burglary committed in the city or recorded in the public press. No matter how refined or intelligent, no matter how pious or how good a Christian, no lodger is allowed to leave the institution after registering until he has completed the work required of him, and has been discharged. No lodger is allowed to go on the street at night. He must stay at the lodging house until day breaks and until his work is done.

The citizens of Syracuse are provided with tickets for the municipal lodging house to give to street beggars and others seeking charity. The tickets read: "Bath, Supper, Lodging and Breakfast for Four Hours' Work—Municipal Lodging House."

New Electric Plant for Jeffersonville.

The city of Jeffersonville, Ind., has just let a contract to the Wayne Construction Co., of Chicago, for building and operating an electric lighting plant. The contract is for a $40,000 plant and 110 arc lights of 2,000 candle power, to cost the city, straight, $46.59 each per year for each light, and $46 for each additional light. If at any time the city desires to own the plant, the amount paid for service will be applied to the purchase price, but in that event the city will pay the operating expenses. The cost of incandescent lights will be fully regulated by ordinance. Under the present contract, the city pays $90 per year for each light.

HON. HENRY V. JOHNSON, MAYOR OF DENVER.

President of the League of American Municipalities.

LEAGUE OF AMERICAN MUNICIPALITIES

A Business Argument Against Municipal Ownership.

[Full text of an address delivered by James Blake Cahoon, of Elmira, N. Y., before the convention of the League of American Municipalities, Syracuse, N. Y., September 19-22.]

Mr. President and Gentlemen:

When your honorable secretary wrote asking me to prepare a paper on the negative side of "Municipal Ownership," I at first felt that, while fully appreciating the honor which the invitation conveyed, I ought to decline, for the reason that I am not an economist in the broad sense of the term, but simply a business manager, who has been brought into close touch with this municipal question by reason of having been manager for some years of those branches of business involving municipal franchises.

I have necessarily had to take up the study of the subject in pretty much all its bearings as understood at the present day, by reason of having had charge of water, gas, electric light and street railway companies, and during my experience I have had, of course, to go through the arduous work involved in a renewal of contracts with cities for the supply of water, gas and electricity.

In one sense, and that possibly a limited one, I may be said to appear in a somewhat representative sense so far as electric light companies are concerned, by reason of my office as vice president of the National Electric Light Association. I do not come before you, gentlemen, in a combative or antagonistic way, but rather in the way of one seeking light on a dark subject. I shall present to you my views on the question at issue, and shall gladly listen to the views of those who may take issue with me on the opposite side.

At the present moment the American people, in the spirit of restlessness characteristic of them, and through which spirit this nation has leaped from an insignificant collection of colonies into a mighty nation, than whom no stronger exists, are seeking some new outlet for the expenditure of their surplus energy, and that outlet is taking the form of the assumption by municipalities of the ownership of public utilities.

When we look back over the history of this great nation, we find that the sole thought which actuated our forefathers in the foundation of its government was to found one that should give the greatest liberty to the citizen, and the right to enjoy to the utmost the fruits of his labor. A paternal government was farthest from the thought of the founders, and it is only through the growth of years, and the taking of one small right at a time from the state to the central government, that the nation has reached its present form, where the central government exercises direct control of the individual citizen in those relations which involve the whole community.

The state still makes its own laws, governing the ordinary intercourse of its citizens, and jealously guards this right, yielding only that which is plainly seen to be for the common good. The municipality, in turn, having once derived its power through its charter from the state, jealously guards any infringement thereon from either state or nation.

The citizen, in turn, is guaranteed certain freedom of action; he may enter upon business in competition with his neighbor and do all that is legitimate and right to insure a just return for his labor and expenditure of capital, but the instant he joins his capital with that of others and places it in a corporate form and starts into business, he then becomes the object of attack by state and municipality. He finds himself compelled, before he can do business as a corporation, to organize as such under the laws of the state and pay a certain tax for the privilege of so doing.

He then finds that he must apply to the municipality for a permission or franchise to carry on his business, and the municipality in turn imposes some additional burden, either in the way of a tax, as a certain percentage of his gross earnings, or specifies that he shall give the city the right to use certain of his property, certain of his rights, without charge; this is especially true if he seeks to manufacture and distribute gas or electricity, or to operate a street car line or a water or telephone company.

These are all, with the exception of water possibly, in the nature of luxuries, and yet to-day, when we have departed from the customs of our fathers and the simple business methods which they employed, and broadened out into the great commercial fields of activity, we may consider them necessities almost as much as water. They are not necessities to preserve life, but they are necessities to carry on business as it is conducted on the scale of to-day.

Now, simply because these industries require the use of the streets of a municipality, streets which are the common property of all, and to which one particular individual has an equal right with the others, we say that these are public utilities, and the present wave of feeling that is sweeping over the country, a feeling born of that restlessness of the American people, declares that these public utilities should be owned and operated by the municipality itself. Do the people stop to reason out the subject? Are they educated sufficiently in the science of economy to so do? No!

Some one said: "Here are industries which apply to the whole people; therefore, the people ought to own and operate them." Acting on the impulse of the moment, the cry was taken up, and has been spread broadcast over the land without rhyme or reason so far as the great masses are considered. Municipal ownership of public utilities sounds well, but is it? Are the people, are the taxpayers going to derive more benefit from the ownership and operation of public utilities by the municipality than by private ownership?

Has the municipality a right to step in and to injure and destroy the hundreds of millions of capital which has been employed in these public utilities? It amounts to ruin to the private owners. Is it right for any municipality, any state, any nation to deliberately go to work and rob any of its citizens of that property which has accrued to them through the results of their labor? Fundamentally, we may say no. Economy will teach us that if we do this to one class of citizens, impending ruin and destruction overshadow the whole community.

Without going very deep into the subject our legislatures have conceded to the municipality the right to do this; hence, when the question of legality of municipal ownership arises, we can simply say, according to law, as it now stands on the statute books, the municipality has a perfect right to build an electric light station, a gas works, a street railway, a water company of its own, to operate them, and in most of the states to render worthless and valueless the capital and labor that have been put into similar properties in the same place by private individuals. In other words, the municipality has the perfect legal right to rob a certain class of citizens of the fruits of their labor, and that class of citizens has no redress.

You may say in reply to this: "We do not intend to rob any citizen. If we decide to operate these utilities, we will buy the plant of the citizen or corporation now existing, at a fair value. We will then be doing no injustice to the private company or individual." Is this true? Supposing you go to the owner of a large dry goods store, who has built up by careful attention to details through a long period of time a large business, and who has acquired a standing in the community, a name that is valuable. People seeing that man's name, know that they will, if they go there, get the worth of their money in the article purchased, that they will be treated well, and that a fair bargain and honest trade can be made there. You say to the owner of this establishment: "We have decided that the city will hereafter run the dry goods business, because we can do it better and cheaper than you, and our management of it will inure to the benefit of the citizens at large. You take an account of stock, we will have it appraised, and will pay you the appraisal value." Is that fair to the merchant? Is not his business name worth something? Is not his long business training worth something? You deprive him of the right to do business in the only way with which he is acquainted. Do you not injure that man? Do you not rob him of a certain amount of freedom? Do you not take away some value from him for which you can make no return?

Let each one of you now here—you are presumably business men—think over this matter as applied to yourself. Would you feel that you had been justly treated if the city had done this to you? Is not this analogous to what the city does when it decides to build and operate or buy and operate its own water works, or gas plant, or electric light plant? Private capital is embarked in enterprises more or less uncertain, and after infinite labor and pains, just succeeds in getting itself into a position where it is beginning to reap a fair return, when along comes this cry of municipal ownership and ousts it from its business.

The American people, as a nation, want justice done to all, and if the people of any community thought for a moment that they were not doing what was just and fair, no people on earth would be quicker to rectify the error. Many people honestly believe that municipal ownership of public utilities is perfectly right and just and best for the community. They cite the example of foreign countries, particularly Glasgow, in Scotland, as showing how beneficial municipal ownership is to a community.

They go on to show, for instance, that Glasgow, in operating its own street railways, enables people to ride for a very low fare, and thus benents the whole community. Careful investigation shows that if we were to give the same service at the same rate Glasgow does, the American people would be up in arms, and mob the street railway. When it comes down to an actual comparison between the service we render in this country for a given fare and that rendered by Glasgow, it will be clearly seen that we give more for the same money than Glasgow or any other city in the world.

Then to the conditions; they are totally different from what they are here; the people are different; their requirements are different; their method of governing is widely at variance with ours. There the government is supreme, and extends its laws and powers over the whole community. Political parties may rise and fall, but changes such as we have here, incident to the change of political parties, are unknown there. There an employee entering the service of a municipality is sure of a life position, so long as he does his work well, and is faithful in the discharge of his duties.

There seems to be a prevailing idea in this country that abroad cities, as a rule, are operating the public utilities. Mr. Sullivan, the president of the Lowell street railways, after an extensive trip through Europe with the particular view to looking into the operation of foreign street railways, states: "Municipal ownership and operation abroad are the exception, rather than the rule, and were the reverse true, and such ownership and operation successful from a financial point of view, it does not follow that American cities could or should follow such example, or if they did so, success would follow. Compare any one of the foreign cities with an American city of the same population, and you will find that the area of the latter is greater and the street railway accommodations greater in proportion. The English cities average over 15,000 persons and the American cities over 2,600 persons for each mile of track. And yet there are those who would state that because Leeds could operate twenty-seven miles of track successfully, Cleveland, with nearly the same population and area, could operate 205 miles of track, nearly nine times as many miles of track, also successfully. If, therefore, the methods of civil service and administration were the same in both cities, Leeds could be eminently successful and Cleveland a monumental failure."

Some of the yellow journals of to-day go still further than any even of you gentlemen have advocated. I note in one New York paper that it advocates the ownership and operation by the United States government of all the great inter-states public utilities, such as the steam roads, the telegraph, and telephone, citing as an instance foreign governments, who, the paper states, give the same tariff to large or small shippers, arguing hence that the railroads support the trusts, and by making special rebates to the large shippers like the trusts, force the smaller shippers out of business.

If municipal and state ownership are advocated on these lines, as well as on the

lines laid down in general by the citizen, where is it to stop? Where will you draw the line? How are people to earn their living? Shall they all go back to farming, and the community resolve itself into the farmer and the laborer again? Shall the field be removed for the investment of capital in private enterprise? Is it not better to stop right where we are than to go on and on, taking first one thing and then another, until the citizen realizes too late that he has made a jump in the dark and done himself an almost irreparable injury.

I have considered only one phase of the municipality taking and operating public franchises, and that is where some private individuals are operating a similar plant. Suppose we consider another phase of it, and that is where no plant exists and one becomes necessary. The question arises as to whether it will be better for the people of the town as a whole to issue their bonds and build and operate such a plant.

Suppose you, as business men, were going to invest a half million dollars in putting up a large cotton mill; which would you do, build and operate this mill, securing the best manager possible, and getting the best work possible out of the operatives, having every item of expenditure properly watched, purchasing supplies at favorable opportunities, forcing every economy to the utmost to insure proper dividends on the investment, or would you place in charge of this mill any one of your fellowtownsmen who might be elected or appointed commissioners to look after the operation of this mill?

Looking back over your business lives, can you recall a single instance where a committee have not done more or less of a botch job in handling everything they undertook? Does it not finally resolve itself down to a leading spirit carrying the other members, be he wrong or right in his ideas? Would you trust the operation of this mill and this amount of money, on which you expected a reasonable dividend, to this particular strong man of the committee? Would you not rather trust it to a man who has proven himself capable, through long years of trial in this particular line of business? I think that I may safely say that you would prefer the latter.

If you would do this with a mill, or with a dry goods store, or with a coal yard, why would you not do it with an electric light or gas or water or street railway plant, or telephone company? These enterprises have all been developed up to their present high standard by private capital. No municipality ever advanced any ideas that were valuable in the development of such enterprises. Private capital and private enterprises have led the way, and where the municipality has gone into any one of these forms of business, it has simply followed what private enterprise has developed.

I believe that I am entirely conservative when I say that no municipal plant in this country ever has, or can under ordinary human conditions, operate a plant so that the expenses of operation will not be at least 10 per cent. greater than the same identical plant operated by private enterprise. The Hon. John MacVicar, in his address to the League in Detroit in 1898, very tersely struck one of the key-notes of the situation when he said: "To my mind it would be suicidal to enlarge the functions of municipalities without providing for the thorough application of the merit system in appointments and for promotions and removals."

This is the principle upon which the private corporation runs its business, and the experiences of business enterprises for past ages have demonstrated that this is not only right, but that if any one deviates from this principle, loss is bound to occur. We will concede that the private corporation invests its money, not from philanthropic motives, but only as a matter of business, that with such a capital invested, it expects to receive a reasonable and adequate interest or return thereon. Hence, they must follow this rule or law, or they will not receive a full return for their investment.

What may be considered the second fundamental law is that all corporations, be they private or municipal, must have the same system of accounting applied to them, and they should be compelled by law to file an annual report to the state, showing every item of expenditure under proper headings. I hold in general that the municipality should not operate any of the public franchises, but I can conceive where certain conditions may exist that would place a water company practically beyond the power of private parties to operate. Every man, woman and child must have water in order to live, and unless that water be good, sickness follows and the community at large is in danger.

A condition may exist where it is not possible, nor would it be profitable for a private corporation to expend the amount of money that would be necessary to get a proper water supply for a large city. A vast water-shed might have to be taken by right of eminent domain, and the state would hardly care to cede any of its right to condemn land to such a large extent as might be necessary for the proper supply of the particular city in question, while it might be willing to give this right to a municipality. In such a case, no matter what the expense might be, the city would be compelled to build and operate its own water works.

But there can be no such question arise with regard to the other public utilities—they are business enterprises, pure and simple, and their products are for sale, the same as dry goods or groceries. Mr. Albion E. Lang, who was president of the American Street Railway Association in 1898, in the course of an address given before the students of the engineering department of the Purdue University, said:

"I am one who believes that the community will deal with these corporations fairly if the corporations will be equally fair with the community; deal fairly and even generously with it, give the best possible service at the smallest profit consistent with a fair return on the investment, and reasonable provision for meeting outstanding obligations, and future depreciation, in which even the community will deal fairly with you. Citizens should be made acquainted with all the conditions governing properties of this kind, should be informed of the reason for incurring the debts which generally exist, and of the annual and contingent burdens we assume. There is a two-fold object which must be accomplished. First, the investment of capital must be made profitable to the investors, and, second, the community must be served in the best possible manner at a minimum cost. Corporations, like individuals, sometimes make mistakes, and through miscalculating the expense of construction and operation, or in the eagerness to secure grants, or for various other reasons, they assume these contracts upon terms and at rates and prices too cheap to permit giving the best of service, with the result that great dissatisfaction is expressed by patrons and citizens generally, and the warfare between the city and the company begins. And municipalities, in some instances through the prejudices or political aspirations of their governing boards, seeking advantage of every method known to their officials, harass corporations, and thus force them to retaliate by giving poor service."

Philadelphia is a very good illustration of this point in its gas company, the city finally purchasing its own plant, and after running it for several years, and incidentally running the plant into the ground, giving bad service, poor gas, and creating dissatisfaction among the citizens generally, finally gave up the operation of the plant, and leased it to a private corporation, with the result that improvement began immediately, and has steadily continued, while a reduction in the price of gas has gone on from year to year, so that no city in the United States to-day is any better served than is Philadelphia, and the price of gas is being steadily reduced, while the private corporation is making a fair profit.

Gas companies and street railways are not in general so much the objects of attack at the present time as are water companies and electric light companies. In a certain city in one of the middle states which was operating its own water plant, several of the prominent citizens said to a gentleman who was investigating the question of municipal ownership, that they could not boast much of their electric light plant, but that their water department was one thing that they felt proud of. When this gentleman came to look into the matter, and he was given free access to everything, he found that their cost of operation, when a proper system of accounting was applied to it, was nearly double what it would have been had a private corporation been operating that department. He stated to me that that particular plant was one of the most discouraging features that he had encountered in his whole experience of advocating municipal ownership.

In the matter of electric lighting the city of Detroit has been quoted far and wide as the one city which has made municipal ownership pay, and such radical statements were made in behalf of the Detroit plant that Mr. Samuel Insull, president of the Chicago Edison plant, one of the best authorities in the country on the cost of electric lighting, made a careful investigation into the costs reported and the actual costs as they should have been reported, and the result of his investigation is set forth in an article under the heading of "Municipal Ownership" in the Chicago "Economist" under dates of April 13th, 15th and 22nd. Those of you who are contemplating putting in an electric plant of your own would do well to read that article.

For 1896, 1897 and 1898 the costs given, taking their own figures for operating expenses and adding thereto taxes, municipal and state, depreciation and provision for retirement of bonds, show a loss for the several years to the taxpayer over what private corporations offered to furnish light for of $38.68 for 1898, $38.40 for 1897 and $29.54 for 1896. This loss must be made good by the taxpayer in the form of additional taxes, and as this is a loss per lamp per year, and we consider the fact that they have 1,744 lamps in service, we can readily see what that amounts to per year.

The present generation may not be the sufferers, but the next one will, and the question arises as to whether we are not somewhat selfish in relieving ourselves of burdens and placing them on a future generation. It is not a businesslike proceeding, at the least. If we take into consideration the average cost of electric light throughout the United States from Maine to California, from Michigan to Texas, we find the average for the forty-eight states as follows:

Hours per year, 3,326.
Coal per ton, $3.03.
Contract price per lamp per year, $101.18.
Cost per lamp hour, 0.34.
Candle power per hour for one cent, 580.

The cities of Springfield, Mass., Brookline, Mass., and Utica, N. Y., after obtaining figures from all sources and making careful investigation and comparison of costs, reported adversely on municipal ownership. In the report of Springfield is the following: "We found the answers received from municipal plants very unsatisfactory, and we must say in some cases, inaccurate, as the answers received from one city were very different on the two circulars sent out, and we are advised that of four requests for information similar to our own, no two were alike. This arises principally from the way in which the cost is figured, but the result is very unsatisfactory and misleading."

I think this abstract probably explains why the question of municipal ownership has ever arisen. Municipalities have not conducted their bookkeeping, so far as their electric lighting plants or even their water companies are concerned, on a strictly business basis, and have therefore omitted many charges that should have been made against the operation of the plant. For instance, municipal and state taxes in many instances have been omitted entirely as a charge against the plant. Interest, in some cases that have come to my knowledge, has been omitted even, while few, if any of the municipal plants charge anything to depreciation, and none of them, so far as I have been able to learn, have charged anything in the year's operating expenses against the provision for the retirement of bonds at maturity.

Hence, in reporting the costs of operation, they are invariably reported very much below what the real cost is. Strict business methods must be applied to a municipal plant just the same as to a private plant; otherwise, you simply deceive yourself and place the burden of your mistake upon the future generation. During some eighteen years' experience in electrical matters, and for many of those years being so situated as to be able to get at the actual cost of operation, my experience tells me that no municipality, however conscientiously they may try, can operate a plant as cheaply as a private corporation. The factors for economy are not with the municipal plant; the same incentive to economy is not there.

It is practically just the same as though we were to make a contract with a householder or merchant to light his house or store for so much a month—he says, and he believes it, that he will turn off the light when he goes out, that he will take the best of care to see that no lights are burning when they are not necessary, and he may honestly believe that he is trying to do it, but he does not. If I put that same man on a meter, I find that he does not use over two-thirds or even one-half as much light when he comes to pay for it by the meter as he did when he simply paid for it irrespective of what he used.

It is just so with the municipal plant—they mean to do well, and try, perhaps, to be economical, but they have not the incentive to reach the point of economy that the employee in the private plant has. In the private plant it is the case of "Watch every penny, do work well, or we will get somebody that can."

In general, if you would compare the cost of the operation of a plant by a municipality and the operation by private parties,

you must take into consideration these things: First, the cost of the materials consumed; second, salaries and wages; third, miscellaneous general expenses; fourth, insurance on property; fifth, employees' liability insurance; sixth, insurance against accidents to the public; seventh, municipal taxes relinquished; eighth, state taxes paid or relinquished; ninth, depreciation, at least 6 per cent. on apparatus; tenth, provision for retiring bonds at maturity.

If you will apply this table, charging everything that ought to be charged, and not, as one city reports, that they have not charged rent of ground or clerk hire or water to the cost of operation because they would have to have these anyway, I think that you will find that our municipal plant is running up to considerable more in its cost to you and to the taxpayer in general then you could get the same service for by contract with a private corporation.

I have looked at this subject, you will have seen, from a purely business standpoint. The private corporation to-day knows from past experience that if it invests its money in any one of these public franchises, it can expect no more than a reasonable interest on that investment, and it is satisfied to deal fairly with the community, to even let the community see its books, and see that it is not making, and cannot make more than a fair return on its investment. Shall not the municipality be willing to grant this, and step aside from its position of municipal ownership, enter into a fair contract with the private corporation, and the two, the private and the municipal corporation, unite and work together in harmony for the mutual good of all?

For Municipal Ownership.

[Full text of an address delivered by Hon. John Mac Vicar, Mayor of Des Moines, Ia., before the convention of the League of American Municipalities, Syracuse, N. Y., September 19-22.]

Mr. President and Gentlemen: We are all aware what the subject municipal ownership involves. The question is, shall the responsibility of furnishing to a community those public necessities, such as water, street lighting, gas, electricity, and possibly street railway service, be assumed by the municipality, and conducted with a view to eliminating the element of profit, to the end that these services, so necessary to the life, health and comfort of the public, shall be furnished at the lowest possible price; or shall this privilege be left to the individual or corporation to use as a means of acquiring princely fortunes by extorting excessive rates from the public?

Despite the powerful influences or private ownership interests, the number of municipally owned public service industries, particularly water works and electric light plants, is rapidly increasing. Some of the opposition to public ownership, it is true, comes with sincerity from those who fail to appreciate either the evils of private ownership or the advantages resulting from municipal ownership, but the greater part of the vigorous opposition comes from those who are directly or indirectly interested in the immense profits derived from the operation of private franchises. Those of us who attended the Columbus meeting of the League two years ago remember the attempt which was made by the franchise-holding corporation headed by Mr. Clarke, general manager of the General Electric Company, to pack the convention in their interests. We also remember that both at Columbus and at Detroit there were introduced, during the closing hours of the convention, resolutions the purpose of which was to incorporate into the minutes such matter as would put the League in the position of opposing municipal ownership. They were partially successful, particularly at Detroit, wherein by manipulation of the reporter's notes, either by accident or design, certain matter was reported in a manner much more favorable to their interests than it was received by the convention. These resolutions have been published broadcast over the country to indicate that a sentiment existed in the League of American Municipalities in opposition to public ownership. It will be strange if at this session a similar attempt is not made.

I need not elaborate upon the claims of those who advocate municipal ownership of these public services. They claim for the public lower rates and improved services; reduction in taxes; higher wages to labor used in operating these industries, and the removal of the most potent source of political corruption which a community must meet.

On the other hand, those who oppose municipal ownership raise objections and claim the adoption of this principle would result in increasing the expense of production, because of the division of the business by competition and by inefficient management; higher taxes; increased corruption in the politics of the municipality because of greater opportunities, and the encouragement of paternalism, socialism, and the prevention of investment of private capital.

Private ownership has many able champions, and their arguments are given a wide circulation. We have upon our program at this session at least two gentlemen who have recently issued books upon this question. I refer to Mr. M. J. Francisco and Lieut. Allan Ripley Foote.

The champion of private ownership usually proceeds to picture the fearful corruption which would be practiced by municipal officials did public ownership prevail. They picture the "jobs" and "grabs" to which the taxpayer's money would be subjected in a manner which alarms the unthinking. Mr. Francisco, in his "Municipal Ownership vs. Private Corporations," says: "The fact that one city pays double the amount for the same grade and make of apparatus paid by another indicates that the price of aldermanic influence was greater in the former than in the latter city, but the taxpayer furnished the money to pay for the plant, as well as all the money spent in buying aldermen's votes." Again he says: "Another feature of municipal ownership that requires consideration is the purchase of the plant. It is well understood that in all matters of this kind there is a large bonus charged over the usual cost, and the municipality pays for the apparatus and the bonus as well."

My experience in municipal affairs has not led me to believe that city officials, as a rule, are as corrupt as Mr. Francisco pictures them. I have learned, however, that where there is the bribe-taker there is always a bribe-giver, and that the principal bribe-giver in our community is not the advocate of municipal ownership, but in more than one instance has been proven to be the representative of the private corporation. And I have learned that it is not alone the city official who is sometimes bribed but more often the so-called "influential citizen" or the venal press. By gifts of money or stock and by free service, these influences are more frequently purchased than are aldermanic votes.

During the heat of a champion made by the citizens of Des Moines to reduce water rates to a reasonable charge, the president of the water company, in an interview in a local paper, stated as follows: "We were foolish enough to divide up the property of the company with a number of the most prominent men in the city. We reorganized and then issued $500,000 in stock and parted with three-fourths of it. The object was to gain strength and popularity for the company, for, if those who called themselves protectors of the people saw there were others interested besides the two promotors, they would not think it so easy to attack the many. I expect from fifty to seventy-five individuals received blocks of stocks. I consider the stock valuable. These citizens paid ten cents on the dollar for it. (Much is known to have been given without price.) It is worth one hundred cents on the dollar if the public will give us a chance to develop the property and collect a fair rate for water and not injure the value of the stock by incessant hammering."

Could such a condition possibly exist under municipal ownership? This is not the only example I might give in support of my assertion that private ownership is the most patent source of municipal corruption which a community must face. There is never a municipal election in our city but one or more of our franchise corporations are contributors to the corruption fund and quiet workers for those candidates whom they believe will best serve their interests.

These supporters of private ownership also proceed to show how fallacious are the statements given out, showing the cost of operation by municipalities, and proceed to lay down certain formula or rules which must be followed in order to arrive at the true cost. These rules are generally so vague and complicated as to leave the reader in a dazed condition when he attempts to sum up the case. An exception to this, however, is found in Mr. Foote's formulae, which he presented to this league at Columbus in 1897.

Mr. Foote has kindly requested that I examine his late productions upon this subject and indicate what propositions are contained therein with which I do not agree. I do not know that I can better illustrate my views upon the question under discussion than by reviewing some of Mr. Foote's assertions, and consider them as they would apply to the affairs of Des Moines.

In the preface of his latest book, entitled "Municipal Public Service Industries," with optimistic assurance, he states that he believes he has found a plan which will effect "a satisfactory settlement of all questions pertaining to public service industries," and that "every dispute between municipalities and public service corporations can be settled to the satisfaction of both parties by the adoption of the proposals herein contained, provided each party is willing to make a settlement that will conform to the requirement of correct economic principles, uninfluenced by any other consideration." Mr. Foote assumes that this "correct economic principle" involves the acceptance by the corporation furnishing these services of a reasonable compensation based upon the cost of service to be determined by a board of municipal regulation to be created by the state. If it were possible for a community to secure at all times a reasonable rate for service, based upon actual investment, the position of those who advocate municipal ownership would be less tenable than it is. Judging from the experience of our city it is, in the first place, impossible to secure by legislative regulation a rate that will at all times and under all conditions be reasonable and just. Watered stock and misleading representations, if the courts are appealed to, and improper influence or ignorance, if state or municipal legislation is relied upon, will always prevent a reasonable rate being secured or maintained. Then again, the constant changing conditions which affect the cost of production of these services, such as radical improvements in machinery, affecting the cost of production, and fluctuation in cost of labor, fuel, etc., will make the actual cost of production from year to year impossible to determine in advance. Certainly it is less impractical to own and operate these industries by the public than to secure and maintain by legislation a reasonable rate for service.

When we find Mr. Foote, who claims to have devoted ten years to the special study of the question of what is a proper basis upon which to determine a reasonable compensation for public service, a compensation which "will conform to the requirement of correct economic principles uninfluenced by any other consideration," and which will be accepted as satisfactory by all parties to the controversy; when we find this independent student of social economy differing so widely and radically in his views as expressed at Columbus in 1897, and at Peoria in 1899, I despair of securing through a board created by the state, which will have at most but a superficial knowledge of the question, and which will be subject to corporate and political influences, an intelligent determination of the question. While in the paper first published there are many factors not enumerated in the latter publication, yet in both are, I believe, factors which should not be considered in estimating the cost of service.

Our city of Des Moines, it is true, has accomplished much by regulation; but had she depended upon the power of her city council and judicial inqutry to determine a reasonable rate for gas, she would have failed to reduce the price. Des Moines secured from her gas company a reduction from $1.75 per thousand to $1.30 per thousand, after the company had proven to the satisfaction of the courts that gas could not be manufactured in our city for less than $1.75. This concession was made by the company to appease the public after the exposure by a local newspaper of an attempt made during the campaign for lower rates, to bribe its editor into silence by the payment of one thousand dollars. This money was placed by the editor in the hands of a committee of citizens with instructions to return it to the real owner when he appeared and proved property. The agent who offered the bribe, an employe of one of our electric light companies, appeared and asked for the return of the money; he was refused upon the plea that he was not the owner, but simply the agent. He appealed to the courts, and within a few months past a verdict has been rendered by the supreme court of the state of Iowa declaring that he was not the owner, but merely the agent. Have you ever heard of a municipality offering a bribe to a newspaper?

Another illustration of the impracticability of securing a reasonable rate by regulation is found in our experience with our electric light companies. Until three years ago our city had been paying for 2,000 c. p. all-night lamps $126.00 per annum and upwards. We called for new bids, but the prices offered showed little or no reduction. We made inquiries concerning the feasibility of reducing our expense for street lighting by means of a municipal

electric plant. We got but little encouragement from the source to which we applied. The General Electric Company advised us that it would cost $250,000 or more to install a plant of sufficient capacity, and that we could not hope to produce lights for less than $126.00, and sent us a copy of Francisco's "Fallacies of Municipal Ownership" to prove it.

Notwithstanding this information, however, we shortly thereafter entered into a contract by which we were to secure upon easy terms a high grade plant with a capacity of six hundred 2,000 c. p. arc lamps for $106,000. The contractors also guaranteed that if the city so desired they would operate the plant and keep the same in repair for a period of five, ten or fifteen years, and charge the city for light from $60.00 to $65.00 per annum for all and every night 2,000 c. p. lamps. This was a proposition difficult for the friends of the private company to attack.

Shortly after the election, which is necessary in Iowa to authorize a municipality to acquire a municipal lighting plant, the same individual who figured in the attempt to bribe the editor, in a communication published in one of our newspapers, threatened to bring suit against the electric company —the General Electric Company, I believe— to recover $1,000 which he claimed remained unpaid of the $2,000 which the electric company authorized him to spend in an attempt to defeat the proposition. Would such a circumstance be possible under municipal ownership?

Our city has been enjoined by the friends of the General Electric Company from acquiring this plant which guaranteed a reduction in price of lights of about one-half. The case is still in the supreme court. As a retaliatory measure our council cut the rates by regulation ordinance from $126.00 per all night lamp to $75.00. I fear, however, that did the company dare, while the suit is pending, carry out its threat to appeal to the courts on the ground that the rate is unreasonably low, judicial inquiry would under the existing circumstances scarcely sustain the city in its enforcement of this rate. This company, which up to this time had furnished to the city light at $126.00 per all night lamp, had recently gone into the hands of a receiver and became the property of the General Electric Company. Investigation proved that as this company had been originally organized with the investment of scarcely a dollar by the promotors, it was capitalized for twice its cost and three times its value. The machinery, which was paid for in bonds, was cheap and inadequate, and was purchased at exorbitant prices. For a time the excessive rates secured for service realized a return sufficient to pay interest upon the stock. Soon, however, the original low efficiency of the plant caused frequent repairs to be made and the increased cost of operation compelled a foreclosure by the parent company. Our city made overtures to the parties who were then acting for the General Electric Company to purchase the plant. They asked $250,000 for it. Intelligent estimates placed its reasonable value at $75,000. The difficulty which the city would have to prove the reasonableness of its regulated rates in the face of the testimony this company could produce is apparent.

Mr. Foote, in his paper, entitled "Cost of Service to Users and Taxpayers; the Only Proper Basis of Comparisons," etc., which he delivered before this league at Columbus, outlines clearly the factors which he holds should be considered in his scheme for regulation of private corporations. He says: "In measuring the prices charged by private corporations against cost of production of municipally owned and operated works, justice and the interests of the people demand all factors shall be correctly and fully included in the account."

He suggests the following as factors to be charged before net profits are reckoned:

Interest on investment.

A reasonable profit, say 10 per cent.

Taxes, insurance, all operating expenses.

Depreciation due to reduction in market price of apparatus, which becomes commercially useless through the progress of art.

Repairs and betterments.

Displacements of appliances, not worn out, but displaced on account of growth of business, making reconstruction and rearrangement of the works necessary.

Sinking fund, reserve fund.

Continuing, he says: "Those who advocate private ownership must accept the issue on this basis and be ready to show that they can and will perform the same service for the same price."

I take exceptions to the following factors being charged to the operation of a municipal plant:

First—Profit. The profit on a commercial investment represents the interest on the capital invested. Why, then, charge both interest and profit to the expense account? The municipality has no desire to exact a profit on its investment, and if it did so, the profit would revert to its treasury. As well might you require a municipality to add contractor's profit to the cost of grading, street cleaning, etc., to determine whether it is cheaper to have this class of work done by the municipality rather than by contractors.

Second—Depreciation due to reduction in market price of apparatus, which becomes commercially useless through the progress of art. As the city does not wish to dispose of its apparatus, it has no interest in its value as a commodity. This item should not, therefore, be charged to expense of operation.

Third—A Sinking Fund. A sinking fund serves the purpose of paying outstanding obligations, such as stocks, bonds and other securities issued to raise the money necessary for real estate and the construction of works, and with the extinction of these obligations, or absence of them, the reason for a sinking fund ceases to exist.

Fourth—Repairs, Displacements and Betterments. You have already provided a reserve fund which serves the purpose of providing ready money for renewals and betterments (not enlargement) of plant, and when such fund is accumulating the charge of displacement would form a double charge for one and the same object. Enlargements of the plant should be treated as new or additional investments, and the means required for such should be raised in the same way as the original plant.

But the most astounding proposition is the demand of Mr. Foote that in this basis of comparisons, which he says is the proper method to determine the "cost to users and taxpayers," upon which to base a settlement of all differences, there be included what he terms "legislative conditions." He says: "Some factors of high potency influencing the price as charged users and taxpayers for service rendered by private corporations never appear in the cost of service rendered by municipalities. They may be grouped under the general term of 'Legislative Conditions.' They are met with at every point of contact between private corporations and state or municipal authorities, users and taxpayers, from the obtaining of a company's charter or certificate of incorporation to the collection of payment for the services it may have rendered."

Among those he mentions as legislative factors are:

Onerous requirements.

Uncertainties.

Regulation.

Requirements for quality, quantity and price.

Competition.

Division of territory.

Period covered by contract.

Penalties inflicted.

Obstruction raised.

Unnecessary requirements for construction and operation.

"The advocates of municipal ownership," continues Mr. Foote, "place a high value on franchise conditions. They hold a franchise, such as a municipality necessarily assumes for itself when it undertakes the ownership and operation of a public industrial service—which is all exclusive, perpetual and untaxed—at a value higher than anything else within the control of a municipal council or of a state legislature. For nothing else within the sphere of legislative action have members of municipal councils and state legislatures been blamed so severely, and held up to public scorn and condemnation with so much indignation as for the so-called giving away of franchises. The values placed on franchises by indignant champions of the rights of the people are never included in investments or fixed charges as a part of the cost of municipal ownership and operation. Whatever value they, or the advocates of municipal ownership, may attach to these conditions should be added to the cost of municipal service. They are as much a part of the cost of service and must be taken into consideration to explain prices charged by corporations, as the cost of coal or labor."

"There is an eminently practical way," says Mr. Foote, "in which the true value of these legislative conditions can be ascertained and utilized for the benefit of the people. It can be accomplished by the fixing of prices charged by private corporations at rates calculated to yield sufficient income to fully pay all general expenses, fixed charges, including interest on investment, taxation and depreciation, operating or manufacturing expenses, the cost of maintaining the plant, and a reasonable profit, say 10 per cent."

In other words, Mr. Foote would have the law provide that municipalities be required to pay to private corporations such rates as will "yield sufficient income to fully pay" not only general expense of operation and depreciation, taxation and interest on investment, together with such other items as would naturally accrue to the maintenance and operation of a municipal plant, but as well a profit upon the value of the franchises, "all exclusive, perpetual and untaxed," which belong to the people themselves. Also a profit, "say of 10 per cent.," upon the investment which already pays an interest; a fund to pay for "depreciation due to reduction in market value," when the municipality does not care to sell; also a perpetual sinking fund where there is no indebtedness; a "reserve fund" as well as a "repair fund;" "betterments" as well as "displacements." Just what he contemplates including in "onerous requirements," "uncertainties," "penalties inflicted" and "obstruction raised," I do not know, but I have known of a corporation in Des Moines to include in its items of expense $23,000 for expense in securing its franchise and organizing the company; also attorneys' fees incurred while attempting to enforce exorbitant rates, and discounts on the sale of second and third mortgage bonds which represents so much excessive capitalization. As for the item of "requirements for quality and price," all will, I think, agree that a municipal plant is expected at all times to give more efficient and higher grade service in every respect than a private company.

Thus Mr. Foote would rob municipal ownership of all the advantages claimed for it, by requiring that a law be enacted forcing municipalities to accept the results of such comparisons. Does he not forget to credit to municipal ownership some of the advantages aside from cost of service which will redound to the people from municipal ownership, such as improved service, purer water, purer gas, better electric light, more efficient public lighting, the removal of a constant source of corruption and menace to good city government, higher wages to labor and lower salaries to heads of departments?

I quote from Mr. Foote's "Public Service Industries," pages 25 and 26, as follows: "All attempts to secure the best services at the lowest practicable price for users through the regulative force of competition have been, and must always be, as illogical as an attempt to quench fire with oil. The people of any city would receive with derision a proposal to cheapen the water service by dividing the industry and constructing one system for public use and another for private use. This being true, why should they regard the construction of a lighting plant for public uses and employ another plant for private uses as a sane proposition? Or why should they expect advantages from the division of any other public service?"

In taking this position, Mr. Foote agrees with President Knapp, of the Inter-State Commerce Commission, and Vice President Morton, of the Santa Fe road. These gentlemen are quoted in the Chicago "Times-Herald," under date of August 11th of this year, as agreeing with Chauncey Depew and other eminent gentlemen connected with our railway service, that the competitive system in railway service is impossible, and that legalized pooling is a necessity. How far are these conservative citizens from the socialist whom Mr. Foote warns the advocates of municipal ownership against taking as a "viper into their bosom, which, when they have warmed its energies into forceful action, will sting them to their death?" These gentlemen all certainly take a position nearer to socialism than I am willing to occupy when they thus advocate applying one of the fundamental principles of socialism to those things in which they are interested. Vice President Morton is quoted as declaring that the price of "railway service should be like the price of postage stamps," probably meaning that the prices should be fixed by government regulation. Let us go but a step further and ask that if from public service industries the element of competition is to be eliminated, that the rates for transportation be made still more like postage stamps by eliminating from it the element of profit also.

From the article above referred to I quote the following: "We do not want uniformity of price in the products of labor and skill. The producer should be free to sell for all he can get, and the purchaser should have the right to buy as cheap as he can. But public transportation is not property at all, but a service. The charges for it, under like conditions, should be uniform, without preference or exception to any person. In fact, Chairman Knapp goes to the extent of saying that free and fair competition in trade, which is the condition of industrial freedom, is impossible without an agreement to maintain uniform rates by the railways that amounts to a monopoly."

These gentlemen advocate that such of our public service industries as they are

interested in be socialized, so that the few may reap the benefits at the expense of the many. Is labor less a service than transportation? I trust that when competition is eliminated by fixing by law the rates for railway transportation and public service industries, that the same law will care for labor, for it is certainly in greater need of government protection than these monopolies. I presume I will be unable to maintain a logical position against these socialistic theories advanced by Messrs. Foote, Knapp, Depew and others. The adage learned from our copy book, "Competition is the life of trade," is like many other idols in this age, shattered.

But let me ask, how without competition would Rockford, Illinois, have been able to reduce the price of arc lamps for street lighting from $125.00 per annum to $52.00 per annum, the same company furnishing them, had she not been able to threaten a competitive plant? Or how would Kansas City have reduced its gas from $1.60 and $1.40 to $1.00 per thousand, except by giving a franchise to a rival company? True, these companies are now consolidated, but the new company's charter fixed the rate at $1.00. When they were in competition gas was sold for fifty cents per thousand, yet the gas trust proved, in their peculiar way, that gas could not be made for less than $1.40. Or how could Des Moines have secured telephone service at $18.00 and $24.00 per annum without a competing company? Under the Bell monopoly we paid from $36.00 to $54 per year. And the service under competition has not deteriorated. On the contrary, it has improved much since the advent of the rival company. Or how could our city have induced the General Electric Company to temporarily accept a reduction in rates on street lighting from $126 to $75 per lamp, except through fear of a municipal plant?

I realize that theoretically these examples of the benefits of competition may be disproven by socialistic arguments. But is it not true that competition, wherever it exists, does regulate? And is it not possible, in such matters as we are to-day considering, to apply competition so that it will safe-guard the public?

I am not yet convinced that socialism is the remedy for the ills prevailing in our economic conditions, but I am forced to the conclusion that when a public service industry can not exist under competition, it should not be protected by the public by eliminating competition under a system which is morally certain to permit the stockholders to charge extortionate rates for service. Rather let these services be owned and controlled by the public and operated for the benefit of the whole people.

I also believe if it is wise to fix, like postage stamps, the price for transportation and such like public services, that the price for labor employed in operating these services should be so fixed that each earner will derive a fairer share of the profits made possible by the paternal care of the government.

The earnest plea of the friends of private ownership is for delay. Mr. Foote, at Columbus, said: "Wait for Carroll Wright's statistics," which were begun six or eight years ago and were not yet given out. Mr. Francisco says in his book, "Wait for perfected electrical apparatus," which will always be subject to improvement. They all say: "Wait for honest city officials and civil service," and at the same time they exert every effort to elect officials whom they can corrupt and to prevent civil service.

We attempted to have a law enacted providing for civil service in our city. A bill prepared by a non-partisan committee was referred to our Commercial Exchange for its approval. The president of our street railway company was present when it was being reviewed and found many defects in its make-up. He succeeded in having it referred to a committee, of which he was the chairman, and though this occurred two years ago, the committee has not yet reported upon it.

Mr. Foote, in his latest book, quotes from the address of your former president, delivered at Detroit a year ago, to emphasize the need of civil service in connection with municipal ownership, as follows: "To my mind it would be suicidal to enlarge the functions of municipalities without providing for the thorough application of the merit system in appointments, promotions and removals."

It would have been fairer had he quoted more fully. I repeat to-night what I then said in addition to the above: "We, who believe in municipal reform, are in the paradoxical position of proclaiming that our cities are doing badly that which they are doing, yet urging that they assume new duties. But the logic of our contention is better than it seems. Burden develops responsibility. There is a reserve of patriotism and capacity of self-government in our citizenship, to which we are not afraid to appeal. Nothing could do more to bring out the latent virtue of the indifferent citizen than freighting the ship of state, already, as he fears, overloaded, with still dearer interests. I am not afraid to startle our money-making voters by producing a situation which will alarm them into a state of perpetual political vigilance. They need to be alarmed. Arouse them to the seriousness of the prevailing conditions, and the spasmodic energy which now cleans the Augean stables of municipal corruption once in ten or fifteen years will be harnessed by unavoidable necessity and constant contact with these public servants, whose functions would be to supply them with street transportation, light and water, exert an influence that would not be satisfied excepting with the best service possible. Every citizen would be interested in securing the greatest efficiency in the public service, and in a very short time demands would be made by a quickened and enlightened popular sentiment for the enactment of a strict civil service law. So long as the corporate interests operate these public utilities for private gain, just so long will we have uncompromising opposition to civil service and good city government. Remove first the incentive to this opposition, which to my mind can be accomplished by removing our public franchises from the public mart, and a new era will dawn in which the best citizenship will be the dominant force in municipal government."

The Syracuse Convention.

President—Henry V. Johnson, Mayor, Denver, Col.

First Vice President—J. A. Johnson, Mayor, Fargo, N. D.

Second Vice President—C. T. Driscoll, Mayor, New Haven, Conn.

Third Vice President—Walter C. Flower, Mayor, New Orleans, La.

Secretary—Benjamin F. Gilkison, New York City.

Treasurer—Thomas P. Taylor, Bridgeport, Conn.

Trustees—J. Adger Smyth, Mayor, Charleston, S. C.

Charles S. Ashley, Mayor, New Bedford, Mass.

Thomas J. Hartley, Councilman, Columbus, O.

Next Meeting Place—Charleston, S. C.

The third annual convention of the League of American Municipalities, held at Syracuse, N. Y., September 19-22, was the largest and most successful meeting ever held by the organization. Delegates from nearly every state in the Union and from Canada were in attendants, some coming from California, Colorado, North Dakota, Texas, Louisiana and other remote points. The program was over-burdened with papers, and some of them could only be read by title and then ordered printed in the official proceedings. All of the papers were of an unusually high order, and their publication will do much toward advancing municipal government in this country. Nearly all of these papers were published in full in the September number of "City Government" which was issued and circulated before the convention adjourned. The book of the official proceedings, which will contain not only the papers, but the discussions and a full report of the business sessions, will be issued soon by Secretary Gilkison.

Although none of the subjects on the program was slighted in any way, the interest of the convention seemed to centre on the discussion of the municipal ownership question. This most important of all municipal questions was discussed on one side by Mayors Johnson of Denver, Mac Vicar of Des Moines, Pierce of Marshalltown, Giese of York, Young of Akron, Flower of New Orleans, McGuire of Syracuse, Drennen of Birmingham, Stetson of Gloversville, ex-Mayor Taylor of Bridgeport, Aldermen Lavery of Poughkeepsie, Dodge of Altoona, Toll of Los Angeles, and Collins of Amsterdam. The negative side of the question was ably presented by J. B. Cahoon, vice president of the National Electric Light Association; Henry L. Doherty, president of the Northwestern Electrical Association; Robert P. Porter, former census director; M. A. Gemunden, former director of public works of Columbus; M. J. Francisco and Allen Ripley Foote. The remarks of Messrs. Mac Vicar and Cahoon are reported in full in this number of "City Government." The entire discussion, as it will be printed in the book of the official proceedings, will form a most valuable addition to the current literature on this subject.

Mr. Cahoon submitted to the convention the following letter from the National Electric Light Association:

NATIONAL ELECTRIC LIGHT ASSOCIATION.

New York, August 21, 1899.

League of American Municipalities:

Gentlemen—The National Electric Light Association, appreciating the great importance to the taxpayers of the country of the question of municipal ownership of quasi-public corporations, and understanding that your honorable body assembled in convention at Syracuse do propose to discuss thoroughly this very pertinent question, both for and against, and believing it to be of mutual benefit to arrive at facts, does through its officers and executive committee (being the governing power and vested with full authority) hereby offer to bear one-half of the total expense (said total not to exceed five thousand dollars) of employing a competent expert to examine as many municipal electric light plants as the above sum will permit. The properties to be examined shall be selected and appointed by the president of the National Electric Light Association and approved by the president of the League. The result of such examination shall be in the form of a report, sworn to before a notary, in duplicate, one copy of which shall be furnished to the League and one to this association.

If this proposition meets with your approval, the representative of this association by whom this is presented, is authorized to attend all preliminary details.

Respectfully,

S. T. Carnes, president; O. T. Crosby, first vice president; J. B. Cahoon, second vice president; George F. Porter, secretary; Samuel Scovil, H. M. Atkinson, Samuel Insull, W. Worth Bean, Charles E. Scott, William M. Brock, E. F. Peck, W. McLea Walbank, F. A. Copeland, executive committee.

After reading the letter Mr. Cahoon said:

Gentlemen: In regard to this proposition I will say for the National Electric Light Association that we come to you in a spirit of fairness and with a desire to seek knowledge on a dark subject. We want to know whether it is safe for us to go ahead and put more money into electric lighting plants. If it is more beneficial to the taxpayer and to the public in general to have the properties operated by municipalities, we want to know it. We submit this proposition to you, gentlemen, and ask for it your favorable consideration.

Mayor Drennen of Birmingham, Ala., moved the acceptance of the proposition on condition that for every municipal plant examined by the expert a private plant of similar nature be examined by an expert appointed by the president of the League and approved by the president of the Electric Light Association. The motion was carried unanimously.

The following resolutions, upon recommendation of the resolutions committee, were adopted:

Introduced by Alderman Elias Goodman, New York city:

Resolved, That while the League of American Municipalities invites discussion, and is intended as a medium for the expression of opinion on all questions of interest to and affecting municipalities, it is not the policy of the League to make positive declaration, affirmatively or negatively, on the important matters on which public opinion is divided.

Introduced by Mayor F. G. Pierce, Marshalltown, Ia.:

Resolved, That the offer of the National Electric Light Association to pay one-half of the expense, not to exceed $5,000, to investigate municipal plants, the investigator to be appointed by the said association, be accepted on the following conditions:

First—The president of this League appoint one investigator and the president of the National Electric Light Association another, these two, with any needed assistants, to investigate jointly and report on all points of agreement and disagreement.

Second—That the investigation extend to the charges for domestic, commercial and street lighting, the cost of coal, the wages and hours of labor in private companies whose conditions are as similar as may be to those of the public plants examined. The presidents of the two associations, in conference with their expert investigators, to select the plants to be examined, both public and private. In case of disagreement on this point half of the public and half of the private plants to be selected by each president.

Third—That in view of the regular dues of the League being inadequate for even ordinary running expenses, the money for this investigation shall be secured by our treasurer from special donations, and our acceptance of the offer under consideration shall be conditional on the raising of this money, for which end we hereby request all those interested to contribute liberally.

Introduced by Alderman Lavery, Poughkeepsie, N. Y.:

Whereas, In order that valuable time may be saved and the method of conducting the convention program of the League of American Municipalities perfected, therefore be it

Resolved, That hereafter the officials selected to prepare and present papers on municipal subjects for the deliberation of this organization, must have the subject matter in the hands of the secretary not less than one month before the opening session of the convention; and be it further

Resolved, That the secretary be and hereby is instructed and empowered to have the said papers printed and ready for distribution to the delegates upon their arrival, thus giving the delegates ample time to deliberate, pro and con, upon the theories advanced, as well as providing them with a thorough understanding of the questions involved and the remedies offered by the authors in the line of municipal reform.

Introduced by Herbert Briggs and Philip K. Reinbold, Terre Haute, Ind.:

Resolved, By the League of American Municipalities that the committee in preparing the program for the session of 1900, be and is hereby requested to invite investigation of municipal taxation, or the sources whence municipalities derive their revenue and report such investigation in the form of appropriate papers for the next convention.

Secretary Gilkison's annual report showed a total membership of 124 cities, an increase of 72 per cent. during the year. Treasurer Taylor reported total receipts, $2,549.90; disbursements, $2,532.11. The officers elected for the ensuing year are named at the head of this article.

The entertainment of the delegates by Mayor McGuire and the city of Syracuse was constant and of the most pleasing nature. On Tuesday evening the mayor, assisted by many of the most prominent citizens of Syracuse, gave a reception in the elegant parlors of the Yates. Champagne punch and light refreshments were served, a splendid band of about thirty pieces furnished the music and the hundreds of delegates who were received had an altogether enjoyable evening. At the big Alhambra Auditorium, on Thursday evening, there was a Dutch lunch and cake walk, which was delightfully informal. Other entertainment features included a trolley ride about the city, an exhibition by the fire department and several theatre parties. The chairman of the local entertainment committee, Alderman Jacob Blint, Jr., deserved and received the hearty thanks of all the delegates and visitors.

Convention Personals.

—Alderman Thomas N. Gorman headed a large delegation from Peoria, Ill.

—Aldermen A. G. Long and E. G. Chandlee represented St. Joseph, Mo.

—Mayor C. Brooks Johnston and City Engineer W. T. Brooke represented Norfolk, Va.

—Mayor E. F. Giles, a most pleasing speaker, was at the head of a large delegation from Altoona, Pa.

—Columbus and Zanesville, Ohio, sent very large delegations. There were about fifty in the Columbus party.

—Mayor S. B. Price, City Clerk Bridges Smith and Ex-Ald. T. J. Carling composed the delegation from Macon, Ga.

—City Engineer George A. Carpenter and Ald. S. Mason, of Pawtucket, R. I., were greatly interested in the proceedings.

—Mayor E. J. Condon, of Derby, Conn., attended the convention, and as soon as he returned home had his city join the League.

—Mayor Huntington Brown, Councilmen Flockerzie, May and Endly and Clerk Remy were present from Mansfield, Ohio.

—Mayor Frank Geise, of York, Pa., was one of the best talkers on the floor of the convention. He took a prominent part in all of the discussions.

—Mayor Frank G. Pierce, of Marshalltown, Ia., presented one of the ablest papers of the meeting. His argument for municipal ownership was clear and convincing.

—Charles S. Ashley, the popular mayor of New Bedford, Mass., received a very large vote in his re-election as trustee. He is one of the best of the League's friends.

—Mayor John B. Weakley, Jr., of Florence, Ala., and Mayor W. M. Drennen, of Birmingham, both orators of high ability, were frequently heard in the discussions.

—Mayor Conrad Diehl, of Buffalo, was one of the most popular delegates in attendance. He was accompanied by M. M. Drake, of the Buffalo public works department.

—The Terre Haute, Ind., delegates were the first to arrive at Syracuse. They were Councilmen Herbert Briggs and Philip K. Reinbold and City Engineer Ralph H. Sparks.

—Councilman David P. Whelan, of Richmond, Ind., took a conspicuous place in the discussion of the garbage question. His city has one of the best garbage systems in the country.

—Besides Mayor Mac Vicar, the city of Des Moines, Iowa, had on the floor of the convention Aldermen W. S. Hall and W. G. Work and Public Works Commissioner G. A. Eberhardt.

—Ald. J. B. Collins, City Engineer Jones and Messrs. Butts and Carlson, of the board of public works, constituted the delegation from Jamestown, N. Y., and they were all hustlers.

—Alderman James A. Lavery, whose oratorical ability has been appreciated at all the League conventions, was present with Alderman Carl Youngs to represent Poughkeepsie, N. Y.

—Mayor Charles C. Duryee and Alderman M. B. McKinley and C. E. Luckhurst represented the city of Schnectady, N. Y. They attended every session and were much interested in all the papers and discussions.

—Westmount, the first Canadian city to join the League, was represented by William Minto, secretary-treasurer; G. A. Robertson, superintendent of works, and James Harrison, chief of the fire and police department.

—Councilman Charles H. Toll, of Los Angeles, Cal., traveled across the continent to attend the convention, and he considered it well worth the while. Mr. Toll has been twice elected councilman without opposition.

—On account of the Odd Fellows convention being in session in his city, Mayor Maybury, of Detroit, was unable to be present at Syracuse. Detroit, however, was well represented by a large delegation of aldermen.

—Wilmington, Del., and East St. Louis, Ill., had the largest delegations, each party containing about thirty members. City Clerk Morrison, in the absence of the mayor, acter as chairman of the steering committee for the Wilmington party.

—Hartford, Conn., was represented at the League convention for the first time, the delegates being Mayor Miles B. Preston, Aldermen P. Hausling, Jr., E. B. Boynton and William Bailey, Jr., and Councilmen J. C. Wells and F. H. Spencer.

—The Trenton, N. J., delegation was headed by Ald. Fred P. Rees, who was a popular delegate to the League's first convention at Columbus. At Syracuse Mr. Rees was accompanied by Aldermen A. E. Dearden, Geo. H. Purvis and Thos. F. McCormack.

—The convention was covered for the Associated Press by Charles F. Philipps, of the New York office, as clever a newspaper man as ever handled a pencil. His full and accurate reports of the proceedings were highly appreciated by the members of the League.

—Mayor John Depinet, of Erie, entertained a box party at the performance of the De Angeles opera company Tuesday evening. The party was composed of members of the Erie delegation, with Mayor Mac Vicar of Des Moines and H. J. Gonden, of "City Government."

—The Atlanta, Ga., delegation, which came so near landing the next convention, was composed of Mayor Pro Tem. I. S. Mitchell, Councilmen T. A. Hammond, Jr., J. S. Parks, M. T. La Hatt, S. J. Holland and D. N. McCollough, Fire Chief W. R. Joyner and Morton Smith, of the Atlanta "Journal."

—Erie, Pa., as usual, had a large and interested delegation. It was headed by Mayor John Depinet and included City Engineer B. E. Briggs, City Solicitor Wm. G. Crosby, Wm. D. Kinney, president of common council, P. J. Emling, select council, and P. J. Stahl, Henry Zimmerly and M. J. Sullivan, common council.

—Mayor George R. Perry, of Grand Rapids, a popular man in any kind of a crowd, was prevented from capturing next year's convention for his city only by the fact the last year's meeting was held in Michigan. Mayor Perry is one of the best workers in the League, and everybody in the organization wishes him the best kind of luck.

—Mayor M. M. Stephens, the man who has made East St. Louis, Ill., one of the best improved cities in the West, was at the head of a very large party, in which most of the gentlemen were accompanied by their wives. Mayor Stephens was mentioned generally for the first vice presidency of the League, but refused to allow his friends to present his name for any office.

—Bridgeport, Conn., was represented by Mayor Hugh Stirling, Ex-Mayor Taylor, Director of Public Works Williams and Aldermen Greenman and Fancher. Upon his return to Bridgeport Mayor Stirling was interviewed by a local paper and expressed himself as greatly pleased with the convention and stated that he would have considerable information to impart, as soon as he became rested, relative to matters which were discussed at the various sessions of the League.

The League's New President.

On another page we present a portrait of the Hon. Henry V. Johnson, mayor of Denver, who was last month elected president of the League of American Municipalities. Mr. Johnson is a native of Kentucky, but has lived in Colorado for a number of years. He is but 46 years of age and a vigorous, active, public spirited man. Last spring he was nominated for mayor of Denver on the straight Democratic ticket, the nomination coming to him entirely unsolicited and as a genuine surprise. In a four-cornered contest he won out by a plurality of about 1,500, and he is now considered one of the best mayors Denver ever had.

Mr. Johnson is a lawyer of considerable prominence in his state, and during the last term of President Cleveland served as United States district attorney for Colorado. He is a clear and forceful speaker, a close student of all public questions, and, altogether, a gentleman admirably fitted for the office of chief executive of the League of American Municipalities.

Exhibits at the Convention.

A most instructive feature of the convention of the League of American Municipalities was the exhibition of apparatus and supplies used in municipal departmental work. A large number of things designed to promote efficiency and economy in the public service were on exhibition, and were carefully examined by the delegates. Several hundred city engineers and public works commissioners were present and to them, especially, the exhibits were most attractive.

THE GAMEWELL SYSTEM.

All classes of city officials were interested in the very fine exhibit of the Gamewell Fire Alarm Telegraph Company, of New York, which consisted of complete fire alarm and police telegraph systems in operation. If perfection has been reached in anything on earth, the Gamewell people have certainly reached it in their apparatus for dispatching fire alarms and police signals and messages. The perfected Gamewell system defies criticism; it's scientific construction makes its automatic operations exact and always correct, with no possible chance for error or break down. Mr. J. W. Stover, president of the Gamewell company, attended the convention, and, being a former city official and a gentleman of large property interests, found the proceedings of intense interest. Under the amended constitution he is qualified for associate membership in the League, and has already made application for same.

THE DECARIE GULLY CLEANER.

Mr. Henry W. Atwater and Mr. Felix Decarie brought from Montreal one of their splendid automatic catch basin cleaners and gave practical demonstrations of its merits. The machine consists of a large, air tight, iron tank, mounted on a strong wagon built specially for the purpose. Two air pumps, driven by eccentrics from the hind axle, are connected with the tank, and as the wagon is driven along the street these pumps exhaust the air in the tank and create a vacuum. A five-inch suction hose, the end of which ha sa bell-shaped mouth, is connected with the tank by a coupling and valve. Upon arriving at the catch-basin to be cleaned, the suction hose is inserted in the semi-liquid mass, the valve is opened, and the contents of the catch-basin are sucked into the tank instantaneously; the whole operation taking from a few seconds to two or three minutes, according to the quantity of material in the gully. This operation is repeated at the different catch-basins until the tank is filled, when it is taken to the public dump. During the whole of this process the tank which is the receptacle for the gully refuse, is hermetically sealed, thus preventing the escape of noxious gases. The tank has a capacity of from three to four cubic yards, and, with three men, can easily do the work of fourteen or fifteen men under the present system.

CHARLTON STREET SWEEPER.

George M. Rittenhouse and G. W. Brady, of the Charlton Manufacturing Co., New York, were present with one of their perfected pick-up street sweepers. They worked the machine over the Syracuse streets and a great many delegates witnessed its operation and were highly pleased with its efficiency. The sweeper worked equally well on wet and dry streets, picking up every particle of dirt and rubbish over which it passed and leaving the roadway as clean a as parlor floor. The economical and sanitary advantages of the Charlton over the old style side sweeper were obvious.

AMERICAN CAR SPRINKLER.

Every day during the convention one of the splendid street car sprinklers of the American Car Sprinkler Co., Worcester, Mass., was operated over the lines of the Syracuse traction company. It's work was inspected by the delegates with much interest, as this comparatively new method of street sprinkling is a matter of importance to city officials who are seeking the most economical and efficient method for wetting streets. The American company succeeded in convincing the delegates that their car, with the patent swinging arm, was the proper apparatus for sprinkling streets evenly, quickly and economically.

LARGE VITRIFIED SEWER PIPE.

An interesting exhibit was furnished by the Blackner & Post Pipe Co., St. Louis, consisting of vitrified sewer pipe in sizes ranging from 27 to 36 inches in diameter.

WARING IDEAL BAG CARRIER.

The Thornton N. Motley Co., New York, exhibited the Waring Ideal Bag Carrier, the Buffalo Pusher and other street cleaning apparatus. The bag carrier came in for the most attention from the delegates, as it was generally known that its use had revolutionized the work of cleaning streets in New York and many other cities. Syracuse is among the places where the Ideal is in use, and the work of the local "White Wings," with the bag carrier, was carefully observed by all the visitors. As a result of the neat work of the Syracuse street force and the Motley convention exhibit, many officials returned to their homes with a determination to adopt the bag carrier system in their own cities.

A. W. DOLFINI & CO.

The Midget Smoke Protector, which is undoubtedly the readiest, simpliest, cheapest and most efficient device of its class; the Whirlpool nozzle and other fire department novelties were displayed by A. W. Dolfini & Co., of New York.

PITTSBURG METER CO.

A large line of Westinghouse water meters, of all sizes, were exhibited by the Pittsburg Meter Co., of East Pittsburg, Pa. The mechanical perfection and accuracy of these meters are so well known that detailed mention is unnecessary in this connection.

H. MUELLER MANUFACTURING CO.

The H. Mueller Manufacturing Co., of Decatur, Ill., displayed water works supplies of every description.

RUBBER TIRES AND ROLLER BEARING AXLES.

The Consolidated Rubber Tire Co., of New York, and the Grant Axle and Wheel Co., of Springfield, O., made a joint exhibit, showing the simple, durable and easy running Grant roller-bearing axle on a wheel fitted with the superior rubber tire made by the Consolidated Co. The officials who examined the exhibit were convinced that the Grant axles and Consolidated tires were the proper things for fire department apparatus, especially.

WEB TILE SEWER.

Much interest centred in the exhibit of the vitrified web tile sewer made by the National Web Tile Sewer Co., of Syracuse. Its strength, durability, efficiency in discharging sewage and many other good points were demonstrated.

THE AUSTIN AND WESTERN CO.

A large exhibit was made by the Austin and Western Co., of Chicago. This concern is known throughout the country for the superior grade of road machinery, street sprinklers and sweepers which it handles. Its exhibit included several kinds of road making machines, all of which worked to perfection. The well known Austin street sprinkler and some splendid street sweeping machines were also shown.

WATSON DUMP CART.

The good qualities of the Watson dump cart, for handling garbage and other matter, were shown in a sample vehicle exhibited by the D. S. Watson Wagon Co.

UNITED STATES VOTING MACHINE.

All the delegates examined with care the United States Voting Machine, on exhibition at the Yates Hotel. It is a mechanical marvel, so positive in its action that mistakes cannot be made, and so perfect in its construction that it cannot get out of order. If one may judge from the remarks passed by those who examined the United States machine, the time is fast approaching when voting machines will be used universally. The United States machine is made at Jamestown, N. Y.

STANDARD VOTING MACHINE.

The Standard Voting Machine, made at Rochester, was exhibited in the convention hall and attracted much attention.

NEW YORK NOZZLE CO.

The splendid spray nozzle made by the New York Nozzle Co. was attractively exhibited.

LONERGAN'S CATCH BASIN.

The Cleveland Foundry Co., Cleveland, Ohio, exhibited Lonergan's patent catch basin, which is certainly a model device.

Milwaukee Garbage Furnace Contract.

The council of Milwaukee, Wis., has awarded a contract to the Engel Sanitary and Cremation Company for the construction of a garbage furnace for the city. As the Engel company's bid was $7,000 higher than that of the Dixon Company, the local representative of the latter concern has sued out an injunction to restrain the carrying out of the contract awarded by the council. The matter will be in litigation for some time.

W. H. THOMPSON,
Grand Island, Neb.

J. L. SCHAAD,
Allentown, Pa.

S. H. ASHBRIDGE,
Philadelphia, Pa.

JOHN P. MEANS,
Steubenville, Ohio.

JESSE F. McDONALD,
Leadville, Col.

A. E. VIDAURRI,
Leredo, Tex.

F. R. WOOD,
Trinidad, Col.

J. P. HARSHA,
Hutchinson, Kas.

VICTOR JENNINGS,
Council Bluffs, Ia.

A GROUP OF PROGRESSIVE MAYORS.

WATER DEPARTMENTS.

Mayor Flower on New Orleans Water Works.

In an address delivered on the last day of the recent convention of the League of American Municipalities, Mayor Walter C. Flower, of New Orleans, spoke interestingly of the important improvements now under way in his city. He paid particular attention to the New Orleans water works question. The mayor said:

Mr. President and Gentlemen of the Convention:

The sessions of the League of American Municipalities have been protracted. This is its closing session and the paper I had prepared is the last to be presented. In view of this fact, and the evident fatigue of the members, I shall not read my paper, which is quite lengthy, but will crave a few moments of your time in which to speak briefly of the improvements going on in New Orleans to-day.

The Mayor of Birmingham, the other day, suggested that every one taking the floor should give a brief account of the city he represents. I will say that I have the honor of representing a city at the antipodes of the country, located as you all know, at the other end of the United States. We are just above the mouth of the Mississippi river. We stand there at the gateway of a continent. New Orleans has in the past run the gamut of all sorts of municipal problems. Many of them we have conquered, and in a good many cases we have been well nigh conquered by them. We owned our water works at one time for a period of twenty years. We operated it under the general control of the municipality, and at the end of the time stated, the examination of a committee appointed by the city council disclosed the fact that we had a water works in name, but not in fact.

The plant had been allowed to decay, the machinery had run down, and the property in the city of New Orleans, and the lives of its citizens, stood in jeopardy for fear of a conflagration from an inadequate water supply. The result was that the municipality lost control of the water works, and it went into the hands of a private company. I read the report of the first manager of that private corporation, after it took possession of the plant, and the picture he drew of the condition of the plant at the time it was received, was something pitiable. The pumping station had completely gone to decay. No improvements had been made in the piping, and of the inadequate piping in the city, most of it had rusted out. He congratulated the people that the water works had finally gone out of municipal control into the hands of a private corporation.

In a proceeding in the courts, made about that time, of the way the water works was run, it was disclosed in the evidence offered in the courts that it had been used as a nursing place for politicians, and was the breeding place of political corruption. When the politicians who controlled the water works desired to make a vote, they exempted some friend from the payment of water rates. Many of the politicians were not on the books and paid nothing for their water. The place was used as an engine of political power, and that was the cause of its fall. It went into the hands of a private corporation. For a while under private control it worked very profitably and advantageously to the city, but complaints arose, and they were justifiable complaints.

The idea of the city of New Orleans, located upon the banks of the Father of Waters, having an inadequate water supply, the drinking water being freighted with all its silt directly from the river, with no filtration! The water became so bad that it could not be used for any other than sprinkling purposes and the extinguishment of fires. At times the fire engines would have to work for some minutes before they could pump the mud from the water pipes to get water to extinguish fire What effort was made by the private corporation for the betterment of this condition entirely failed, and a profound dissatisfaction arose that increased day by day and year by year, until the people rose up in their might and said: "This thing cannot go on any longer under private ownership if we can put it under the control of a non-partisan board."

So we had the test under both forms of ownership. The conditions do not exist now as they existed formerly when the plant was under municipal control, because the people in our city now know no master and wear no man's collar; but each man stands erect in the likeness of his Maker. Three attempts had been made for the people to vote on a tax for public improvements. These attempts in the past had all failed, for the reason that apparently the people were unwilling to trust in the hands of our then rulers the disposition of a very large sum of money. The last attempt was made six months ago. As a condition precedent to a vote for public improvements, our law requires that, in cities of a population above 50,000, one-third of the property tax payers shall sign a petition for the improvement. We met with the greatest difficulty in securing signatures. We finally got one-third of the tax payers, and we submitted the question to the people.

The politicians came forward and very nearly wrecked the entire scheme by insisting that the seven commissioners who were to handle the money should be selected by popular vote. The interest in the movement ceased for a while and the whole scheme came near being a failure, but, as a compromise, it was agreed that when the question of the tax was submitted to the people on the bottom of the ballots should be printed: "For the appointment of commissioners by the mayor," and "For the election of commissioners by the people." When the ballot was taken the vote was largely in favor of the mayor's appointment.

The board has been appointed—a non-political, non-partisan board; and there is not a man in New Orleans who if he should die to-morrow, but would feel perfectly safe in leaving his estate and the interest of his children in the hands of any member of the board for settlement. With that feeling of absolute security, we have voted a tax of $15,000,000, to be devoted, first, to the purchase of the water works and putting it back under municipal control. In the hands of this non-partisan board it can be taken out of politics.

Then we are to drain the town thoroughly. We have had built by the General Electric Company the largest electrical pumping machinery applied to purposes of that kind in the world. That machinery has been installed and seven separate pumping stations will be erected, as the progress of the excavations make it necessary. In New Orleans to-day, wherever you go, you will find her streets torn up, and you will hear nothing but the clink of the trowel and the pulsation of the pile driver—everything is activity and bustle, and in the course of five years, when the sewerage and drainage system is completed, and the water works are under municipal control, governed by a non-partisan board, the future that will open up for our city is one almost undreamed of.

From 1835 to 1842 New Orleans stood the fifth city in commercial importance and population in the United States. We have dropped down to the twenty-fifth. A good many causes have contributed to this—bad municipal government, possibly, has been the main cause; but the periodic visitation of that old enemy of ours, yellow fever, is the most active cause in our retrogression. George E. Waring, whom you all know by reputation, the civil engineer of New York, went in October last to Havana, and examined into the conditions existing there, but he fell a martyr to his work and was taken with yellow fever on his way home and died; but before his death he prepared a report for presentation to the United States government. He declared that given eight or ten million dollars, he would guarantee, by a system of sewerage and drainage, to forever banish yellow fever from its breeding spot. Yellow fever is not indigenous in New Orleans. We can trace every case; they always come from Havana. With drainage and sewerage under municipal control, as we have it now, the future that opens before us is bright, and we do not know what good things it will bring forth. We have already been fifth in the order of cities and who shall say we will not regain our lost place? Our export of grain has quadrupled in the last two years; we are the largest export point for cotton in the United States, and we stand just below New York as an export port for all products. Our population is 300,000. We have an assessment roll of $140,000,000, and we hope and believe with these improvements going on that it will be doubled in the course of the next decade.

Feeling the need of sewerage several years ago, we in our poverty let this out to a private corporation. Complete failure was the result, and the people have made up their minds that they are going to have their own sewerage system under municipal control. A suit is now pending for the forfeiture of the franchise of the private corporation.

We are also going to be confronted with the greatest difficulty in settling with our water works people. The plant may not cost more than $600,000 or $700,000, but it is a valuable franchise, because it is an exclusive privilege. The company still has twenty-five years to run, with a capital of $2,000,000. The city will have to buy it out. They are willing to pay the two million dollars, at least, those connected with the city government, whom I have heard express their sentiments, are willing to do so, for the sake of getting the plant under municipal control again, and getting it into the hands of the board or commission, which can be absolutely trusted.

I owe the meeting some little apology for localizing this discussion. My paper is entitled, as printed in the program, "Public Improvements at New Orleans." The discussion of this subject has no raison d' etat as far as this convention is concerned, unless it touches some general principle of improvement. Our conditions are unique. We are on a perfect level fourteen feet above the level of the sea, and when we get back four or five squares from the river front, we are on a dead level with the sea. The engineering difficulties that confront us in the construction of these sewers and to secure a perfect system of drainage are gigantic, and the amount of money that it will necessarily call for is enormous. These were the problems and questions to which I intended to draw the attention of the convention in my paper, but as you will all have an opportunity of reading this when the paper is printed, there is no necessity of my mentioning more of the details here. I will, therefore, ask that the paper be printed in the proceedings, without being read.

Model Water Works for Small Towns.

Under the above caption Mr. C. E. Moore, a well known civil engineer, contributes a most valuable article to "California Municipalities." The writer begins with the assertion that in providing water works for nearly all small towns there are certain points in common, and proceeds as follows:

"We will consider first the quantity of water to be provided. There are books full of statistics concerning this question, and yet it is a point in which municipal officers are very likely to be misled. * * * In the first place these statements are made as an average consumption for the entire year. In some localities the difference in water consumption between winter and summer does not vary greatly. In fact, in some eastern cities the reported consumption has been greater in winter than in summer. How different is the case of a country town in the climate of California. Data obtained in eastern cities is of no use at all when applied in these cases. There are also many things to be considered besides the domestic use of water.

"First, the flushing of sewers: In this connection the extent and construction of the sewerage system must be considered. Every town should be sewered, and if it is not already done, a water plant must be constructed with this in view.

"Second, sprinkling streets: This may be comparatively unimportant at the outset, but it is safe to predict that when a town furnishes its own water, this use will greatly increase. To make attractive streets sprinkling is necessary.

"Third, irrigating lawns and flower gardens: In a well kept town we shall expect to find these. There is certain to be a demand for this also when water is plentiful and cheap. Now it is useless for any municipality to undertake to furnish water unless it can be both plentiful and at moderate rates. The inhabitants will expect it. The universal experience is that in municipal plants for small towns, the use of water increases from all these causes and others."

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"Fire protection: Possibly this is most important of all. It is the point where private plants quite often most signally fail. A municipal plant should be designed with especial reference to fire protection. The proper distribution of hydrants is a matter for good judgment. Every house should be within reach and with two lines of hose if possible. Regarding the style of hydrant, little will be said, as this is a matter which should be referred to the engineer. In general, however, a hydrant is something that gets rough usage. * * * If the size of the main will admit, it is economy to make the hydrant with two nozzles. The increased cost is small, and it in effect adds another hydrant to the system. Of course only one experienced in such work and with technical knowledge of the subject, can decide as to the proper size of the mains in any given case, but it is generally true that double nozzle hydrants may be used on mains of six inches diameter or larger.

"In connection with the subject of fire protection, it may be said that probably the very best system for a small town, is that of using hose attached directly to the hydrant. This makes it desirable to be able to increase the pressure on the mains for fire purposes. It will be further considered under the head of 'pressures.' In order to get good results with any system the best hose should be used. The condition of the interior surface has a great effect upon the delivery when a long line is out.

"Pressures: From fire protection we naturally come to pressures. That is, the pressure which is desirable to carry on the mains for different purposes. For domestic service, in general, 40 to 50 pounds per square inch is ample, and is much better for many reasons than a heavier pressure. If the town is reasonably level, the system may be designed for that pressure without difficulty. If different portions of the town differ very greatly in elevation, the case may demand a division of the distribution system. A greater domestic pressure causes more or less waste of water. For fire purposes, the pressure at the hydrant should in general be not less than 60 to 70 pounds with te fire streams in use. Supposing 500 feet of the best hose in use, then the stream from a 1-inch nozzle will discharge about 175 gallons per minute. The horizontal distance thrown as a 'fair' stream will be about 60 feet, and the vertical distance about the same. The pressure which is usually known in a system is the 'static' pressure, that is, the pressure with the water at rest. When a hydrant is opened, however, and the stream running, the actual pressure at the hydrant will be less than this.

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"Pumping machinery: The model plant may or may not require pumping machinery. * * * The first question that will arise will probably be that of high duty or low duty pumping engines. Of course this is a question for the engineer, but municipal officers should have a general idea of the principles involved. Briefly described, high duty engines are those producing a high result in water raised for the fuel consumed. High duty engines involve heavy first cost with the end in view of great economy in operation. Of course there are between the simple duplex pump and the regular high duty engines, many grades. In the case of moderate sized plants the highest duty will invariably be ruled out. The increase of cost will be too great for the saving. It is often assumed that if the saving in fuel equals the interest on increased cost of plant, this increase can be profitably made. In fact, however, the fuel saving should be, in general, much more than this to justify the increase. The agents of high duty engines often dwell exclusively upon fuel saving. In fact many other things should be considered in this connection. As one instance of possible error in this direction which the writer has seen in more than one plant, is the error of installing a condensing engine when it caused a waste of water which could not be spared, and when the cost of pumping the water for condensing was too great. A very important point is that for a small town the pumping machinery should be as simple as possible. The number of employees will be small, and in case of accident or sickness, the plant must at times be operated by inexperienced men.

"Another question is that of duplicate pumping machinery. Municipalities are sometimes advised to install one high duty engine, with no reserve, it being considered that the danger of breakdown is too small to be an obstacle to such an arrangement. The writer has given considerable attention to this matter and is decidedly of the opinion that there should in all cases be a reserve of some sort. It is a great advantage to be able to lay an engine off for a day or two for adjustment and repairs. In fact it may be stated as a necessity. The same is true of boilers. While it is possible to make boilers do nearly continuous work, it is a very great advantage to cool a boiler down slowly and to have it idle for several days for cleaning, etc. To conclude this portion of the subject it may be summarized as follows: Seek above all things simplicity and durability. All essential parts of the plant should be in duplicate, or at least so arranged that there are two means of accomplishing an end. For instance, in the case of boiler feed pumps, the ideal arrangement is with two pumps, but the principle may be carried out by using one pump and one injector. The question as to how far it is judicious to use money in construction to secure economy of operation can only be determined by special study of the case. It is generally true, however, that for small plants, the greatest economy throughout is attained by engines of moderate cost, arranged in duplicate, and well proportioned for the work to be done, and with boilers also in duplicate, and with steam producing capacity considerably above actual needs.

"Storage capacity: In a gravity system this question will generally settle itself, and the storage capacity will be large. In a pumping plant there should be storage capacity to last over night, so that one engine crew can do the work. Beyond this, additional capacity is not of great advantage, as the pumps must always be kept ready for work. If there is high ground at not too great a distance, the ideal would be a small reservoir; and in this case the capacity would naturally be somewhat increased. If there is no high ground, the case calls for some kind of a structure. It has been fashionable in the East to recommend stand pipes for such service. This, however, has been a case of copying from city plants and very often it has been injudicious. Standpipes are properly used in connection with large pumping plants simply to furnish a constant head, and to equalize the small variations in demand. In these, they do not serve for storage at all, as the entire amount of water contained would last but a very short time. In a small plant the case is different. Besides acting to furnish a constant head against which to pump, the structure chosen must serve for a few hours storage. Now in a stand pipe only a small portion of the water contained is available, being a few feet at the top. As the water level lowers, the pressure becomes too much reduced. This has led to the adoption in many instances of some form of tank. Of course if it can be afforded, the structure carrying the tanks should preferably be of steel.

"Distribution system: This should be so proportioned that all hydrants can be supplied without too much loss of pressure. * * * The ground should be carefully studied, and the prospects of rapid building up in any part of the town. For small towns, on cross streets where no hydrants need be connected, it is often practicable to use quite small pipes. This is a point in which it is extravagance to copy the systems in large cities. In cities it is generally expected that the subdivision will be into small lots. In the country town this is often not to be expected. In cities it is often the rule to use no size smaller than four inches in diameter. Many would recommend the same practice for small towns. It is often possible, however, to use 3-inch or even 2-inch pipe with good results and with great saving in cost. It is true it must be used with care, and only when it is decidedly proper, or the result will be poor service."

Reports of Mechanical Filter Test.

The reports of the test of the mechanical water filter for the East Providence Water Co., at East Providence, R. I., have been submitted by the experts. The chemical analyses were made by Professor John Howard Appleton, of Brown University; the bacteriological work was done by Dr. Gardner T. Swarts, secretary of the Rhode Island board of health, and the whole test was under the direction of that well known engineer, Edmund B. Weston, of the Providence water works. As the report of Mr. Weston takes into consideration the data contained in the reports of Professor Appleton and Dr. Swarts, and shows the results of the test, it is printed, in part, below:

The test covered a period of about 144 days, and the New York Filter Manufacturing Company, of New York, furnished the filter, which is of a type known as the Jewell gravity filter.

The average daily quantity of water furnished to its consumers by the East Providence Water Company, at the present time, is about 200,000 gallons. The available daily capacity of the filter is 500,000 gallons, and the rate of filtration 125,000,000 gallons per acre per twenty-four hours. The filter building, pure water well and pipes, are

arranged for a future addition of three more filters of the same design and capacity, when the requirements of the service demand them.

The filter was run throughout the test under ordinary working conditions, and the filtered water was pumped directly into the mains and supplied to the consumers. It was in charge, under the writer's direction, of the regular pumping engineer of the East Providence Water Company. The writer gave directions from time to time, but did not, on the average, visit the filter plant more than once a week during the test.

The chemical used during the test was sulphate of alumina. This was added to the raw water in the form of a coagulant solution, which was prepared by dissolving one part of sulphate of alumina in about 20 parts of filtered water. The solution was always thoroughly mixed before being used.

The test was commenced on March 10, 1899, and completed on August 2nd. The chemical examinations were discontinued on May 25th, and the color and alkalinity analyses on May 31st.

The sulphate of alumina used during the test contained about 22 per cent. of alumina, Al2 O3, with the exception of from March 10th to 11th inclusive, from June 1st to 7th inclusive, and from June 22nd to 28th inclusive, when an inferior and cheaper grade containing about 17.53 per cent. of alumina, Al2 O3, was used.

The sulphate of alumina was added to the raw water during the test at the rate of 1 grain per gallon with the following exceptions, namely: From March 10th to 11th, from March 20th to 25th, and from May 1st to 6th, when 0.75 of a grain was used; from March 27th to 30th, when 0.60 of a grain was used, and from June 22nd to 28th, when 1.25 grains were used.

The portions of the test during which quantities of sulphate of alumina other than that of 1 grain per gallon were used, and when the inferior grade of sulphate of alumina containing about 17.53 per cent. of alumina, Al2 O3, was used, were considered as special experiments.

The average removal of bacteria during the entire test, when the two grades of sulphate of alumina were used at different periods from 0.60 of a grain to 1.25 grains per gallon, was 98.7 per cent.

The average removal of bacteria during the time when 1 grain of sulphate of alumina containing about 22 per cent. of alumina, Al2 O3, was used, which was considered as the standard grade, was 99.2 per cent.

Other average results obtained during the time that 1 grain of sulphate of alumina of the standard grade was used, show that there was:

6 per cent less total solids in the filtered water than there was in the raw water.

1 per cent. less chlorine in the filtered water.

61 per cent. less ferric oxide in the filtered water.

38 per cent. less aluminic oxide in the filtered water.

29 per cent. less free ammonia in the filtered water.

63 per cent. less albuminoid ammonia in the filtered water.

83 per cent. less color in the filtered water.

20 per cent. increase of hardness in the filtered water.

The filtered water in every instance was alkaline.

Attention is called to the fact that the preceding summary of results shows that the filtered water contained 38 per cent. less alumina than did the raw water before the sulphate of alumina was added to it.

The results given in table No. 1 of Dr. Swarts' report, show that the average number of bacteria found in the filtered water during the time when 1 grain of sulphate of alumina of the standard grade was used, is less than 5 per cubic centimetre, which is a remarkably small number. Therefore, if the results given in the table should be used for comparison with results obtained with other filters, the small number of bacteria found in the filtered water should be duly taken into consideration, as well as the percentage of reduction.

Buffalo's Water Plant.

The city of Buffalo leads the world in the average daily per capita consumption of water, it being 246.5 gallons. Few cities use more than 75 gallons per capita, per day, and all over that amount may be looked upon as wasted.

Allowing that Buffalo has a population of 360,000—450-000 is claimed—this means a waste of more than 61,740,000 gallons of water per day.

This is only made possible by the non-use of meters. It is an open secret among the officials and citizens of Buffalo that thousands of consumers of water allow their water to run almost the year round—in winter to keep it from freezing and in the summer to keep it cool.

By the enployment of the flat rate the taxpayers of Buffalo impose upon themselves an added expense of thousands of dollars. The people and not the officials are to blame, because the latter are in favor of the business method—the use of meters. The officials of the department are all that could be desired in efficiency and fidelity.

The total pumping capacity of this plant amounts to 187,000,000 per day, constituting, probably, the largest pumping plant in the world under one roof. There are two engines built by the Lake Erie Engineering works of Buffalo, with a capacity of 30,000,000 gallons per day each; three engines of the Holly Mfg. oC., Lockport, N. Y., with 20,000,000 gallons capacity each and one with 15,000,-000 gallons; two engines of the Henry R. Worthington Co., Brooklyn, N. Y., with 20,000,000 gallons capacity each, and one with 12,000,000 gallons.

These engines are supplied with steam by a battery of thirty-two boilers, with total capacity of 4,600 horse power.

The system of distribution employs 480 miles of mains, the largest being a 48-inche. There are 61,500 taps, supplying about 90,000 families. Only 994 meters are used in the entire system, 80 per cent. of which are used by manufacturers.

Filtration at Kittanning.

The new filter plant of the water company at Kittanning, Pa., has been completed and the consumers are now being supplied with pure water. A crib 175 by 16 feet was sunk to a depth of 12 feet in the bed of the Allegheny river. A pipe two feet in diameter and 900 feet long conducts the water from the crib to a receiving well at the pumping station. Gravity is the sole agent that causes this, for the receiving well is 45 feet deep and the fall from the crib in the river bed to this well is over three feet.

The crib is ceiled by sand and gravel above and at the sides, and the water which enters comes up through the bed of the river and through a thick layer of sand and gravel at the bottom, being thus perfectly fiiltered and protected from the water of the river. From this crib it flows to the receiving well, and is pumped from there to the basins a half mile away.

In the reconstruction of the Kittanning Water Company's plant over $60,000 has been expended. A 4,000,000 gallon pump has just been erected by a Philadelphia concern, and is in operation. The old 2.000,000 gallon pump will be kept as a relay for the larger pump. The daily consumption of water in Kittanning is from 700,000 gallons to 1,000,000 gallons, so there will be no danger of a water famine there.

May Abolish Water Rates.

Mr. George r. Reinhart, chairman of the ways and means committee, Baltimore, Md., has before the council an ordinance to abolish water rents in that city, and says he proposes to push it. The measure is of importance to every property owner and tax payer. The idea is to assess the expense of maintaining the water department on the taxpayers in the regular annual levy for current expenses. A feature of this plan which will appeal to a great many is that it would simplify the collections system, which is now complicated by divisions between several departments.

Under the present system the surplus from water rents goes into the sinking fund. The surplus amounted to many thousands of dollars last year.

Gloversville Water Works.

The ninth annual report of the board of water commissioners of Gloversville, N. Y., has been issued. It shows that the total revenue from water rents during the last fiscal year was $31,209.87. Tapping, fines, material sold and penalties brought the receipts up to $32,108.36. The total expenditures amounted to $30,-062.86, including $10,000 paid on bonds, $7,802 for interest, $2,671 for land damage and $2,642 for extensions. There is nothing in the report to show the amount of water consumed.

Big Reservoir for Newark.

The board of public works of Newark, N. J., have decided to build a storage reservoir of 600,000,000 gallons capacity for the city water supply. This action of the board was taken after careful examinations of all the conditions were made by expert engineers and reported upon. It has been decided to build the reservoir partly in Essex county and partly in Passaic county, and the land is to be acquired by purchase or condemnation. The new water supply for Newark is to come from drilled wells with an aggregate yield of 5,000,000 gallons per day.

Commission to Investigate Lighting.

The city council of Baltimore has just passed an ordinance providing for the appointment of Mr. A. Leo Knott, Professor Jacob H. Hollander and Mr. Chas. E. Phelps, Jr., as a commission to inquire into the feasibility, practicability and expediency of the establishment of a municipal electric lighting plant for lighting the streets and public buildings of the city. Mayor Malster has frequently declared in favor of a general system of municipal ownership, telegraph, telephone and all, and will undoubtedly approve the measure.

Professor Hollander, who is connected with the John Hopkins University, has been abroad studying the problem to come before the commission. Mr. Phelps is the chief engineer of the municipal subway commission and an enthusiast for municipal ownership. The commission should not be long, therefore, in making up a report. The council will approve it and proposals will be speedily advertised for.

Birmingham Lighting Contract.

The present street lighting contract at Birmingham, Ala., expires September 5, 1900, and a resolution has already been introduced in the council instructing the light committee to advertise for proposals for lighting the city with electricity, gas or other lights for a term of ten, twenty or thirty years. The resolution also directs the committee to make a full investigation of the lighting subject, and ascertain the cost of establishing and maintaining a municipal plant.

Dr. C. A. Greene, of Castile, N. Y., has presented to the village, sixteen wooden boxes, which are neatly painted, placed in different parts of the village, and bear the following inscription: "Boys and girls, I am hungry for nut shells, fruit skins, rags, papers, and scrap of every kind, won't you feed me?"

PAVING AND SEWERS.

Sewage Disposal Problems.

[Full text of an address delivered by G. Everett Hill, of New York city, before the Convention of the League of American Municipalities, Syracuse, N. Y., September 19-22. Now first published.]

Each living individual, whether it be a single cell of protoplasm or the complex structure called a man, is a magnet, with two distinct poles. One pole attracts and is attracted by certain substances; the other rejects and is repelled by certain substances. From the rotifer which seizes upon all that comes within the influence of its whirling cilis, and passes the whole flood through its body, to the monkey which eats the kernel of the nut and throws away the shell, progress in food selection and rejection is steady though slow. But here evolution seems to have halted. The methods of man are practically those of the monkey. From the beginning to the present all energies have been bent on acquisition, and rejection was an instinctive unthought-of act. No one, save perhaps the barbarous Chinaman, dreamed of putting his wastes to any use. Things which we do not want we throw away, and that is the end of our interest in them. Even the poet, who is supposed to be an idealist, instead of putting his rejectments into the rubbish barrel or some other suitable place, unblushingly says:

"Behind us, in our path, we cast
The broken potsherds."

The sailor alone, who has had an experience denied to the poet, has modified this promiscuous disposal of wastes by insisting that hot ashes—and certain other things—be not thrown to windward.

Seriously, I have not overstated the case. When man forsook the nomadic for the settled life he formed the habit of depositing his wastes in some one particular spot. So long as the area surrounding his habitation was large, he suffered little recognized inconvenience. But when the farm became a village and the village a town—as the land was divided and sub-divided, and the houses and population multiplied, man was brought into closer relations with the accumulation of his own excrement, offense and disease resulted and it became evident that either he or it must get off the premises. Consequently he sought for a new place in which to throw it, and, grumbling about the cost, built a sewer to the nearest stream. He thought only of transferring the offence to some point beyond the reach of his senses—not of destroying it. But an epidemic broke out in a town below, which used this stream as a source of water supply, and the resulting suffering and death were found to be directly chargeable to the community which had "thrown away" its sewage into the stream. The courts were invoked and future pollution of the stream was forbidden. What could be done with the sewage? The ocean was too remote to be reached. There was no mighty river available which could serve as an outlet. Then man began to think and to study. He found that sewage was not irredeemable filth. He learned that nature, when allowed to have her own way, would turn his foul and poisonous offscourings into clean and harmless mineral forms, and would restore to contaminated water its original purity. He learned, moreover, that this could be done without offence, and close to his own home: that there need be no accumulation of filth, nor any pollution of streams or other infringement of a neighbor's rights: that death rates can be lowered, that suffering and expense of sickness can be lessened, and the period of productiveness lengthened. Now he is trying to preach this gospel of sanitation to his fellow men.

Self-betterment cannot be forced upon the individual or the community by any outside influence: but the courts will protect an individua' threatened by his neighbor, or a town whose health—or comfort—is menaced by the act of another town. The common law on the subject is clear and comprehensive: but the growing realization of the danger and the wantonnness of stream pollution has led to special and stringent legislation in many of the states, and federal action is expected. Massachusetts, Ohio, New York, Minnesota and West Virginia were the pioneers in this work. North Carolina, Connecticut and New Jersey have followed. Pennsylvania, Illinois and Wisconsin have begun the fight for purity. Massachusetts, basing its experience on the investigation of numerous typhoid epidemics, will not permit the discharge of unpurified sewage into any watercourse used as a source of domestic supply within twenty miles of the point of proposed outlet. Ohio, by a recent decision of its state board of health, forbade the discharge of crude sewage into Lake Erie within ten miles of Cleveland's water intake. New Jersey has restrained Paterson from emptying more sewage into the Passaic, although this river is not fit for use as a water supply. St. Louis is taking steps to prevent Chicago from pouring its filth into the Mississippi. The granting of injunctions restraining individuals and corporations from discharging sewage into streams is a matter of almost weekly occurrence. If any of my hearers represent communities whose watercourses are polluted by the sewage of a superfluminous population, I assure them that they have a remedy. But, let me add, that the weapon is a gun which must be honored in the breech as well as at the muzzle. The marksman should have a very firm stand before he pulls the trigger.

Before discussing in detail the problems before us, let me state briefly, as a foundation, the aim, difficulties, methods and results of sewage treatment. Ordinary domestic sewage consists of 998 parts of pure water, one part of mineral matter—mainly salt—and one part of organic matter. The mineral matter is unobjectionable and may be disregarded. The only element which can cause offence or give rise to dangerous conditions is the one part of dead organic material. It matters not where this comes from—from the water-closet, the kitchen sink, the stable, the slaughterhouse or the brewery—whether it be of animal or vegetable structure. In all cases its constituents, its capacity for mischief and its destiny are the same. It is composed entirely of mineral elements—mainly of carbon, nitrogen and hydrogen, but no chemistry, save that of life, can combine these elements in this form or can give to any other arrangement of them the characteristics of organic matter.

In the conservation of matter, as of energy, nothing is ever lost. When an organic structure ceases to be the abode of the mysterious vital principle, it must be demolished, and the materials of which it was built must be returned to nature's storehouse for further use. There is but one way in which organic structure can be disintegrated—by combustion. The ashes and gases which result from the combustion of animal or vegetable matter are no longer organic, but mineral. Combustion, which is the same as oxidation, is of three kinds: Igneous, which we call fire: chemical, which is illustrated by the rusting of iron; and bacterial, which is commonly known as decay. The first can attack either mineral or organic matter. It is of little or no use in the treatment of sewage; for the one part in a thousand which we wish to destroy cannot be touched until the 998 parts of accompanying water have been evaporated. The second, chemical oxidation, can attack mineral matter only, save in a very limited degree. It is of no value in sewage treatment. The third, bacterial oxidation, is the means which nature has provided for the demolition of dead animal and vegetable tissue and the preparation of plant food.

Bacteria are minute living organisms, which, although invisible as individuals, are so numerous and so active as to balance the energy of all the constructive forces of the vegetable world. They are universally present—in water, in the air and in the soil. They have been at work ceaselessly since the first death of a vegetable growth. They have disintegrated and returned to the soil, since the beginning of history, a mass of human excreta which alone would equal 178,000 pounds for each square foot of the earth's surface, to say nothing of the wastes of all other forms of animal life and the enormous masses of dead vegetation. Manifestly, without their aid existence would be impossible.

There are as many kinds of bacteria as there are kinds of men. Some few are known as the stimuli of certain specific diseases: but the vast majority are beneficent. The percentage of hostile forms is no higher than the percentage of recognized criminals in the total population, or no greater than the percentage of poisonous plants in the flora of the country.

For our purposes, these organisms may be divided, broadly, into two classes—those which do their best work in the absence of oxygen, and those which are most energetic in the presence of oxygen. There is no distinct line of division between these classes; indeed, a great many kinds of bacteria seem to thrive equally well under either condition.

The complete mineralization of organic matter is not accomplished by any one species; but the work is divided into successive stages. Each organism performs its own special work and passes on the improved but not completed product to the next.

The final changes can be accomplished only by the air-loving organisms, for the presence of oxygen in considerable quantities is essential for purification. The earlier changes, however, may be made by either aerobic or anaerobic forms. When this work is done by the former, the changes are simple and inoffensive. This is the decomposition which breaks up fallen leaves and turns into plant food the manure spread on a lawn or field. So far as we know, its agents are not only harmless in themselves, but they are hostile to and victorious over the great majority of disease germs. Where the conditions favor the growth of anaerobic organisms, the changes are more complex and objectionable. This is the putrefactive process, which rots sewage stored in a cesspool. It has the power of liquefying the solids more rapidly than the aerobic process; but many disgusting and poisonous by-products are evolved; and, although it is probable that disease germs perish in the struggle for existence, conclusive evidence to this effect is still wanting. This we do know, that, save for the competition of myriads of other germs, the conditions—moisture, darkness and absence of air—are favorable for the development of the microbes of the so-called "filth diseases."

Briefly outlined, the methods of sewage purification in use are the following:

Broad Irrigation. This is a process of aerobic bacterial combustion, whose essential feature is the spreading of the sewage intermittently in thin sheets over the surface of a large area of ground, so that each drop of it may come into contact with the atmosphere. This is the system which has been used for many years, with excellent results, at Berlin, Paris and many other places. The manner of operating is simple and the expense of maintenance light. It requires more land than any other process, and the soil must be of a suitable nature and well underdrained.

Intermittent Downward Filtration. This is but an intensified form of irrigation, made possible by the use of a soil so exceedingly porous and well drained that the air can penetrate to a considerable depth, for the oxidation of the impurities carried into the pores by the intermittent floods of sewage. It requires less land than irrigation; but the quality of the soil must be especially suited to its work, and the preparation must be more careful.

The Septic Tank. This is an anaerobic or putrefactive process, and is, therefore, incomplete, requiring supplemental treatment of the sewage by some aerobic method. It consists of a water-tight tank or cesspool which collects the sewage and retains it long enough to allow the sedimentation of the solids. These rot as they lie in the bottom, and pass out in solution, or in a finely divided suspended state. The proper unit of size for the tanks has not been determined. In England they are built to hold twenty-four hours' flow. The one at Champaign, Illinois, has about one-twelfth this capacity. Theoretically, a septic tank should be large enough to retain the sewage until sedimentation is complete and putrefactive disintegration has begun, but it should not be so large as to permit the attainment of an advanced stage of putrefaction or the accumulation of bacterial poisons to a degree that would be fatal to the bacteria themselves.

Dr. Sims Woodhead says: "The anaerobic changes, usually spoken of as 'putrefac-

tive,' require to be carefully controlled, and it has been evident to me throughout that this anaerobic phase is often carried too far, with the result that the aerobic nitrifying changes are greatly delayed in the subsequent treatment of the sewage."

In view of the difficulties in building and maintaining an absolutely tight cistern, the septic tank should never be installed in a district where the use of well water is permitted. Even where the water supply is beyond the reach of possible contamination, there is some risk of polluted soil and ground-air. While admitting the facts that the septic tank does much to solve the sludge problem and that its cost of operation is practically nothing, I am strongly inclined to the belief that, as "the only good Indian is a dead Indian," so, on sanitary grounds, the best septic tank is one which has not been built.

The septic tank is the extreme exponent of rapid putrefactive methods for disintegrating the solids of sewage. At the other pole, representing the methods of inoffensive aerobic decomposition, stand the processes of Lowcock and Waring, which treat sewage by passing it through filters filled with very porous material, and thoroughly aerated in all their parts by a current of air forced into and through the beds. Such filters combine the maximum of purification and the minimum of land requirement. A space eight feet square will purify, to a drinking water standard, one thousand gallons of sewage per day. When the effluent is to be discharged into a stream not used as a source of domestic supply or for the watering of cattle, such a high degree of purification is unnecessary, and the sewage can be applied to the beds at considerably greater rates. The operation of these filters involves the expense of running a fan or blower; but this is inconsiderable, especially if electric power, which needs no engineer, be used. Filters of this sort are in operation in Brooklyn, at Willow Grove Park, Pennsylvania (a suburb of Philadelphia), and elsewhere. At Willow Grove, which has a deficient water supply, the pure effluent is pumped into a secondary reservoir and is used for supplying the toilet-rooms and lavatories, and for sprinkling the streets. The men in charge of these plants drink the water freely.

Between these antipodes of putrefaction and decomposition, stand many composite processes, which lean towards one method or the other, or combine both equally. Each claims some special advantage, but all are based on the broad principles of natural bacterial decay and work toward the same end. No one system can be recommended as the best for all cases. Hygienic considerations and economical adaptation to the varying local conditions should be the determining factors. The first is of prime, and the second of subsidiary importance.

In view of the ever growing probability of enforced purification of sewage, cities and towns should keep before them, clearly differentiated, the conditions which will facilitate or make difficult the installation of a purifying plant. By far the most important desideratum is the maintenance of a flow of sewage uniform in quantity and in strength. Free use of water is certainly a most important factor in maintaining the cleanliness—and therefore the health—of a community; but the most lavish ablutions of person, house and utensils cannot account for the immoderate floods of water which pour through the sewers of many a town and city. Forty gallons per head per day will suffice for an extreme luxury in cleanliness—yes, for a veritable ablutionary dissipation. The fouling of water beyond this limit adds nothing to the comfort or well-being of a single individual; but it increases greatly the cost of water supply (especially if filtration be necessary), and the expense and difficulty of sewage disposal. To minimize the flow of sewage, three avenues must be guarded.

First—The sewers must be made tight enough to keep out ground-water. In a literal sense, this is impossible; but serious leakage can and should be prevented. The water of the soil is normally clean. Wherever its removal is advisable, it may be collected by drain tile, laid in the same trench with the sewer, and may be discharged, without treatment, into the nearest watercourse. If allowed to mix with sewage, it will require the same treatment as sewage, and its added bulk will necessitate the enlargement of the purification works.

Second—The same reason is cause enough for the exclusion of storm-water from the sewers; but there are other urgent reasons why its admission should be prohibited. Its flow is widely variant; and, although the processes of sewage disposal are reasonably elastic, irregularity of supply tends to destroy uniformity of results. Moreover, storm-water carries with it an undue proportion of mineral matter in the shape of silt and road detritus. This is harmless in itself; but, being inorganic, it cannot be destroyed, and its accumulation chokes the filters and in other ways proves a mechanical inconvenience.

Third—The waste of water should be prevented. By this I do not mean that use should be restricted—not even excessive use; but the waste which never comes into contact with the consumer should be stopped. Leaking faucets should be rewashered; leaking ball cocks should be adjusted, and fixtures and pipes exposed to frost should be protected so that the practice of allowing water to run continually, to prevent rupture, will have no excuse for its extravagance.

Another complex problem which demands thoughtful and delicate, though decisive treatment, is the extent to which manufacturing wastes may be admitted to the sewers of a city. A discussion of the intricacies of this subject and the careful balancing of the varying arguments which enter into such a discussion are manifestly beyond the scope of this paper. But this broad general principle may be enunciated: That the community at large should not be expected or permitted to pay an undue amount for the disposal of its sewage because of the excessive quantity, abnormal foulness or peculiar chemical composition of the wastes produced by an individual or a corporation. So long as these wastes can be cared for without damage to the sewers, without undue enlargement of the sewerage works and without increase in the difficulty or cost of purification, there is no reason why admission should be refused. But when any of these provisions are infringed, the objectionable liquid should be excluded, or the manufacturer should be compelled to pay a just proportion of the expense of treatment.

In spite of the apparent complexity of the problems to be solved and the bewildering variety of the schemes which are offered as solutions, this fact has been clearly established, that any community can purify all its own wastes, upon its own premises, without offence, and at a reasonable cost; and that, so far as its sanitary obligations to other communities are concerned, it can put itself in a position which is not only impregnable but absolutely unassailable.

The Liernur System of Sewerage and Sewage Treatment.

Dr. Thresh, the county medical officer of Essex, England, who was one of a party of officials recently sent to investigate the Liernur system of sewerage and sewage treatment at Trouville, France, has submitted the following report:

"For purposes of sewerage the town of Trouville is divided into eleven sections, each of about 150 houses. The sewers in each of these sections communicate with a large underground iron cylinder, capable of holding about 7,000 gallons, and the cylinders of all the sections are connected with the main sewer. Each cylinder is also connected with a powerful air pump at the works, about one mile from the town, by means of a vacuum pipe.

" Each house connected has the ordinary sanitary fittings, water closets, &c. No special fittings of any kind are required in the house. The sewage, however, instead of passing directly into the drain and thence into the sewer, as in the English system, is collected in an underground receptacle, a small iron tank, fitted with a syphon trap to cut off foul air from the premises and to prevent the admission of any foreign bodies, such as brushes or mops, which might tend to block the sewers. Each of these receptacles is ventilated by means of the soil pipe or a special ventilating shaft, and communicates by means of an iron pipe, about four inches in diameter, with the street sewer. On each of the house drains there is a valve which can be used for disconnecting the house from the sewer if ever the necessity arise. The street sewers pass directly to the receiving reservoir of the section. The mode of working is as follows: For six or twelve hours the sewage is allowed to collect in the house receptacles. A man then visits each district in succession, and by opening certain valves places all the street sewers, with their connected houses, in direct communication with the district receiver, which is kept exhausted of air. Immediately the valves are opened the air pressure outside forces the contents of all the house receptacles into the sewers and into the collecting reservoirs. This is effected in a very few seconds. When all the street sewers are thus emptied the valves are again closed, cutting them off from the receiver. The receiver is next placed in connection with the main sewer, when the whole of the contents is with extraordinary rapidity discharged therein and passes directly to a large tank at the sewage works. The district sewers are about six inches in diameter, and the main sewer is eight inches to twelve inches in diameter. Of ccurse, all are of iron, with perfectly air tight joints.

"The advantages of this system of sewerage are obvious, and may be classified as under:—

"(1) The sewers and house drains being of iron, and absolutely air tight, there is no possibility of leakage of sewage or sewer air to pollute the subsoil, and there is no danger even if the drains pass under the houses.

"(2) The sewer requires no ventilation, so that neither manholes nor air shafts are needed. This prevents one of the most serious nuisances which arise in connection with the ordinary system.

"(3) No flushing is required. This effects a great saving in water, and obviates the necessity for providing tanks or other flushing devices, a great advantage where slop closets are used, or where the water supply is limited.

"(4) The sewers are practically independent of fall and can follow the contour of the ground. In flat and hilly districts this is an enormous advantage.

"(5) The system dispenses with the use of inspection chambers, manholes, flushing arrangements and ventilating shafts, and deep cuttings are avoided. Every house, at whatever level, can be connected.

"The disadvantages are:—

"(1) That sewage is retained near the houses for about six to twelve hours. If the system is properly installed I am bound to admit that this is merely a sentimental objection. If the house drains are properly trapped off from the receptacle, and the latter properly ventilated, no nuisance or harm can arise from the sewage being thus collected. Obviously, however, the receptacle must be sufficiently large for all emergencies, or trouble may arise. I am told that these receptacles are usually so placed that if they become filled the over flow passes into the branch sewer. Where the house and receptacle is much lower than the sewer this arrangement is impossible.

"(2) A separate system of sewers must be provided for rain and storm water. This is not an unmixed disadvantage, since it permits of sewers being laid so as to act as subsoil drains, tending to keep the subsoil dry and the town above more healthy, and diminishes the amount of sewage to be treated at the outfall.

"(3) A pumping plant must be laid down and maintained, in order to ex-

haust the air from the main sewer and district cylinders, and enable the sewage to reach the works.

"(4) Men must be entrusted with the work of opening and closing the valves so as to empty the house receptacles at regular intervals.

"As far as my present knowledge admits of an opinion being formed, my impression is that the advantages are great and the disadvantages trivial. If, therefore, the cost is not considered, the system is better than our English one. The question of cost is one which I am not in a position to discuss with authority. The Messrs. Liernur assure me that the expense is less than that of a well constructed sewerage system in English lines. Where pumping is unnecessary the English system would probably be cheaper, but if pumping has to be resorted to I can well believe that Liernur's system would be economical. Probably, however, the advantages would be well worth the additional outlay in any case.

"So far I have only discussed the system whereby the sewage is removed from the houses and town to the disposal works, because I deem it desirable to keep the system of sewage removal and that of sewage disposal quite separate. The sewage is received at the works in a large cylindrical tank, in which a high vacuum is maintained and which is in direct communication with the main sewer. From here it passes into an underground hermetically sealed reservoir—a septic tank, in fact—in which, after the addition of a little sulphuric acid, it is stored until required for further treatment. In small towns, and as in Trouville, where at present barely half the houses are connected, the sewage is allowed to collect until sufficient has accumulated, the tank requiring, out of season, two or three days to fill. When the tank is nearly full the plant for treating the sewage is set to work.

"The sewage is pumped from this tank as required into a series of boilers or evaporators, where it is evaporated by special contrivances at a rapid rate until it acquires a semi-solid consistency. It is then passed into another iron cylinder or drying chamber, when the remainder of the moisture is driven off and only a dry pulverulent residue remains. All these processes are conducted in closed vessels and in such a manner that the works are free from any odor, and can be kept scrupulously clean. The manurial matter produced, on a valuation of the nitrogen, Phosphates and potash, is worth from £6 to £7 per ton. The effluent consists simply of distilled water. Obviously nothing purer can ever be obtained."

Expert on Street Paving.

Mr. Arvid Rydstrom, an engineer and contractor of Tacoma, Wash., who has for years made a study of street paving, in a recent interview, said:

"Street paving is a matter of a good deal of importance to a city in many ways. A city is the home of its inhabitants and needs properly equipped streets as much as a house needs well-floored and clean hallways. As a financial investment nothing gives more immediate and better returns to a city than smooth, solid, well paved streets. Aside from the impetus to business and the facility for moving heavy loads, it is wise to attract new citizens to a city, if for nothing more than the money they spend. Where would the beauty of architecture be without streets to display it? Architecture is one of the elements of a successful city. A handsome building with a disgraceful pavement about it is like a beautiful picture with a broken and soiled frame.

"A city without pavements cannot maintain its economic existence. Goods cannot be moved, progress even on foot is impeded, street cleaning impossible and the health of all is endangered. The tendency of pavements for many years in Europe and for half a generation in America is toward smoother surfaces and fewer joints.

"Macadam and telford roadways are not feasible within large cities, although they are desirable in suburbs and small towns. The wear of heavy traffic and the effect of wet, dry and freezing weather disintegrate them rapidly. Under more than the lightest traffic telford and macadam cannot compete in economy when maintained in constant order with granite, asphalt, brick or even wood pavements. They are more eminently fitted for use on pleasure drives in parks or elsewhere than on city streets.

"Experience of the health department of every city has clearly demonstrated that the plagues of former centuries and many of the epidemics of our day are largely due either to lack of pavements or the presence of such faulty ones as are productive of microbes and bacteria. In order to make many streets in London, Paris, New York and elsewhere safer, not only for those who live near them, but also for the city at large, asphalt pavements have been laid upon hundreds of streets in tenement and similar quarters. The surface of such pavements, being without joint, are easily cleaned. They are also flushed or washed free from germs of all kinds by each rainfall.

"Granite pavements are suitable for heavy traffic and must be used in many places, although the noise from them and the difficulty of keeping them clean are greater than upon pavements made of asphalt, brick and a few of wood.

"Paving bricks are the natural outcome of the impossibilities of shaping granite and other stone blocks so that they will have true sides and even surfaces. Brick pavements indicate the desire on the part of many to retain a block form of pavement. They are successful where laid under strict specifications properly lived up to, and where an honest city administration and honest contractors meet to do good work. Brick pavements are not successful where poor bricks are used. One of the great difficulties, even for the friends of brick, is to determine poor ones and prevent them from being used."

Sewers and Pavements Contemplated.

Extensive street improvements, costing about $250,000, are contemplated at Alexandria, Va. The plans, which are now being considered by the city council, call for a new and complete sewerage system and the paving of all the principal streets of the city. Acting City Engineer W. B. Corse prepared the plans.

Baltimore Public Improvements.

More than a million dollars worth of public improvement ordinances are in the hands of the different committees of the city council of Baltimore. The council, which was elected last May, is overwhelmingly Democratic, there being but six Republicans to twenty-seven Democrats, including the president of the second branch, Mr. Skipwitch Wilmer, who under the terms of the new charter, is ex-officio mayor. The tendency is to keep the tax rate below $1.80 in 1900 and for that reason it is not likely that many of the pending ordinances will ever come to light again. Mayor Malster and City Register J. Frank Supplee, leading members of the board of estimates, have already declared for a $1.75 tax rate.

Pavement Not Properly Laid.

Commissioner Schoenecker of Milwaukee, recently ordered a contractor to tear up and relay two blocks of brick paving between street railway tracks because it was not laid strictly according to the specifications. It appears that when the brick were laid the contractor did not immediately pour the tar which is applied to such pavements over that portion of the pavement as was between the tracks, although it was done on the other portion of the newly laid pavement. Meanwhile the dust and sand sifted in between the tracks, filling the cracks and rendering the application of the tar effectively almost impossible.

Subway System to be Extended.

An extension of the general system of electrical subways for Baltimore city has been determined upon.

Under the original designs for the system the city was divided into districts, and the central district was marked out for immediate conduit construction, that being the section of congested overhead wires and consequently the section rendered most dangerous to property and life because of such wires. This district was bounded by Madison street, Greene street, Pratt street and Central avenue. For the construction of the conduit system $1,000,000 was authorized. The work in the central district, described above, will be completed by November, and only about $400,000 will have been expended on the work. The low cost of the conduits laid has, it is stated, been due to the careful work of Mr. Charles E. Phelps, Jr., the chief engineer, whose plans have been followed and whose ideas have been adopted by the subway commission. It has been determined by the commission, at Mr. Phelps' suggestion, that the main lines of the system be extended to the city limits, as far as possible, in order to relieve the congested condition of wires on a number of important thoroughfares.

It is thought by Mr. Phelps that the extensions can be made at relatively less cost then the central conduits, because the physical difficulties will not be so great, and that the $600,000 remaining from the loan for conduits will carry the work into a territory not contemplated by the original experts on the constructive cost of the conduits.

Pleased With the Sweeper.

Thomas McLean, street commissioner of Paterson, N. J., writes to the Charlton Manufacturing Co., of New York, as follows: "I am pleased to say that the pick-up street sweeper purchased from you has given entire satisfaction; it does all the work that you claimed for it. No doubt the committee will need another machine next year and you will hear from us again."

—West Newbury, Leaminster and Plymouth, Mass.; Pittsburg, Pa.; Manchester, N. H., and Wilmington, Del., have made contracts with the Manchester Locomotive Works to rebuild fire engines with their latest improved Amoskeag boilers.

FIRE DEPARTMENTS.

Automatic Fire Alarm Systems.

[Full Text of a Paper by Capt. William Brophy, of Boston, Read Before the Recent Convention of the International Association of Fire Engineers. Now First Published.]

Mr. President and Members of the International Association of Fire Engineers:

"Will automatic fire alarm systems connected with the municipal electric systems, materially aid or retard the efficiency of well organized fire departments" is the topic which your board of directors has assigned me, and I have accepted the task somewhat unwillingly, I must confess, because I felt that I had been heard full often enough by you in the past, and should give way to others who perhaps are more able and willing than I am to instruct and entertain you.

Auxiliary and automatic fire alarm systems differ so widely in their operations that I shall be obliged to treat them separately; both are designed to give prompt notice to the fire department, or a portion of them, of the existence of a fire, one without human aid, while the other cannot operate without it. Recently, however, it has been proposed to render the former in a measure at least, independent of any human agency.

I will first discuss the auxiliary system, as it comes first in order. In its simplest form it consists of a simple metallic circuit, including a controlling magnet placed in a fire alarm box, one or two cells of open circuit battery, with press buttons or other devices placed in different portions of the building or buildings which this particular box is designed to protect. These push buttons or switches are in multiple, so that the closing of any one of them closes the circuit and energizes the controlling magnet, setting the mechanism of the box in motion. These switches or push buttons are usually placed in an iron box or case with a glass front, which must be broken before the button can be reached; the alarm box cannot be set in motion the second time until the inner door is open and the trip readjusted; this prevents an excited individual from pulling the box the second time. Again, if this was not so, a short circuit on the auxiliary circuit might keep the box running until it ran down, and in the case of the sector box it might keep going indefinitely. In order to render this operative at all times, all other conditions being fulfilled, the trip must be readjusted immediately after the box has sent out the alarm; if it is not done then, but left for some hours after, as is the case in some localities, the building or buildings in which the auxiliary is located are without the protection of the fire alarm system, perhaps for hours, and the watchmen, inmates and owners are not aware that such is the case, so that should another fire occur on the premises delay in giving the alarm would surely result, as the person who pushed the button would have no means of knowing that the tripping magnet was not adjusted, and of course assumes that the act of pushing the button pulls the box. Again, in case the auxiliary circuit is broken the box cannot be pulled by it, and those who depend on it for protection have no means of knowing its actual condition. If a short circuit occurs on it between the battery and the fire alarm box, the former being of the open circuit type, it soon becomes polarized and inoperative, and under some circumstances a short circuit might prevent the starting of the box even before polarization of the battery took place. If a short circuit occurs between any two of the switches or push buttons, the alarm box would be set in motion, in that way giving a false alarm, while none of us care to have our departments called out by a false alarm, yet a failure to call them when needed might lead to disastrous results.

There is another aspect of the case that cannot be overlooked, viz: The failure of the auxiliary might under some circumstances be charged to the fire alarm system, and several reasons might be given for doing so. It might be said that the box did not operate; or was cut out; that the circuit was open or grounded; and under some circumstances it might be hard to disprove such charges; in any event misunderstandings of this kind would not tend to promote good feeling and state of harmony between the owners and promoters of auxiliary systems and the superintendents of fire alarm telegraphs.

There is one system of the auxiliary fire alarm more elaborate than the one just described, in which is provided a method of testing for open circuits, crosses, or short circuits on the line, and the condition of the battery. The auxiliary circuit includes, when in its normal condition, a gravity battery consisting of two cells, two relays, a galvanometer, an electro-magnet, located in the fire alarm box, and one or more auxiliary boxes located at suitable points throughout the building or buildings they are intended to protect.

Each of these boxes contains a lever or switch which when pulled down throws into the circuit an open circuit battery of six cells which in addition to the two cells of gravity or closed circuit battery which is included in the circuit at all times, is sufficient to energize the releasing magnet in the fire alarm box, which releases the detant and sets the train in motion, sounding out the alarm. In about one or two seconds after the lever in the auxiliary has been pulled down the mechanism of the fire alarm box opens a switch contained therein, which opens the auxiliary circuit, but while the lever in the auxiliary box is held down by the hand of the operator, the circuit is closed after being opened in the fire alarm box through a small vibrating bell, which rings until the lever is released and returns to its normal condition, thus notifying the person giving the alarm that the auxiliary circuit is in working condition. The operation of the two relays included in the auxiliary circuit, which I will designate as numbers 1 and 2, is as follows:

Number 1 has a resistance of 21 ohms and controls the two local circuits, included in each of which is a vibrating bell, which I will designate as No. 1 and No. 2, both of these circuits being energized by one or two cells of open circuit battery. Number 2 relay has a resistance of but 1½ ohms, and controls No. 2 circuit through a forward contact, which controls No. 1 circuit through the forward contact, and No. 2 through the back contact. The operation of this relay is as follows: When the auxiliary circuit is in its normal condition, energized only by the two cells of gravity battery, the armature is held by the attractive force of the pole s of the magnet against a spring which prevents it from closing circuit No. 1 through the forward contact; when the auxiliary box is pulled the resistance of this spring is overcome and circuit No. 1 is closed, and No. 1 bell rings until the spring is pressed back in place; but when that is done the back contact spring closes No. 2 circuit and No. 2 bell rings until the auxiliary circuit is closed in the fire alarm box. If the auxiliary circuit is opened at any time otherwise than through the medium of the auxiliary boxes this No. 2 circuit is closed, thus giving notice that the auxiliary circuit is disabled. The ringing of these bells might continue for a long time before the circuit was closed in the fire alarm box, particularly if the alarm is given for a fire of considerable magnitude; this might be overcome by the insertion of a switch to be operated by hand, but I question the wisdom of doing so, as it might be left open when the auxiliary circuit was closed, when the open circuit alarm (a very important one) could not be given. The No. 2 relay simply controls the No. 2 local circuit, but the resistance of its coils being but 1½ ohms, the attractive force of the poles is not sufficient to close the circuit, and it is only when a portion of the auxiliary circuit is short-circuited by a cross, "ground" or contact between the two wires of the circuit that this relay can be energized sufficiently to close No. 2 circuit, and ring the bell, thereby giving notice of a short circuit, caused either by accident or design.

There is a method of testing provided to ascertain the condition of the battery, which obviates the necessity of cutting out the fire alarm box from the fire alarm circuit. This is accomplished by means of a hand switch that is held in its normal position by means of a spring; the movement of this switch throws into the circuit a resistance of 650 ohms, and the large open circuit battery, at the same time the controlling magnet in the fire alarm box is out of the circuit; the 650 ohm resistance coil is designed to prevent increasing the electrical energy in the circuit but little above that produced by the two cells of gravity battery, any change in the condition of the battery is indicated by the galvanometer, which is in circuit at all times.

It can be readily seen that this system is much more complicated than the one first described, and in order to obtain the results aimed at, viz: prompt notice of open and short circuits, a plain indication that the mechanism of the fire alarm box had been set in motion when the auxiliary box had been pulled, a means of testing the battery without giving an alarm from the fire alarm box unless it was short-circuited, with the chance ever present of leaving the short-circuiting plug in after the test was made, thereby rendering the fire alarm box utterly useless, it should receive as much attention as the most vital portions of the fire alarm system. It is also evident that the introduction of the various ingenious devices is for the purpose of extending auxiliary circuits to a considerable number of buildings separated by a considerable distance. I am now, and always have been, of the opinion that there should be a limit to the number of buildings included in an auxiliary circuit and their distance from the fire alarm box.

The early promotors of auxiliary fire alarm systems for a time indulged in the hope and belief that the auxiliary push button would replace, in a great measure, the fire alarm box, and that each dwelling, store, workshop, factory, church and school could have a private fire alarm box within their walls at very slight cost. That when a man discovered a fire on his premises on a cold winter night he would not be obliged to leave his house to summon the fire department to his aid; he could, after pushing thebutton, proceed to remove his household goods and valuables to a place of safety, or if he has any of the instincts of a fireman in his make-up, he may wage a losing fight against the fire with the inadequate means at his command.

In the meantime we will assume that the push button has done its work, and that the fire department has responded with commendable promptness to the box, to find it locked and no one bearing human semblance near it, and to add to the mystery no fire visible; they find it is of no use to rail or attempt to break the sphinx-like silence of the box, for alas, it can speak but one language—one short sentence summoning them to its presence or its immediate vicinity, it cannot tell them that the fire is one, two or three blocks away, and that an amateur fireman is doing his best to subdue it, and in the meantime blessing them for what he expects them to do, or damning them for what they have not done. The fire department finally being convinced that some miscreant has given a false alarm returns to quarters, perhaps are comfortably located between the sheets and blankets, when the same box number is sounded again; this time they know it is not a false alarm, the brightly illuminated sky tells them there's work to do. The fire being extinguished, the amateur fireman learns that instead of not responding to his call promptly the fire department responded twice, and that "the push button does not always mean that the other fellows will do the rest."

To be of material aid to a well organized fire department, the auxiliary system should be connected to a fire alarm system only under the following conditions: It should be constructed in the best possible manner; the interior wires should be insulated in the best possible way, and should be run in such a manner as to be perfectly protected from mechanical injury; the battery should be placed in a dry place, cool enough to prevent rapid evaporation of the liquid; and each cell should be insulated one from the other, and from the ground. If possible, all overhead wires from the building to the box should be avoided; the system should not be connected to a public fire alarm box unless the same was fastened to the walls of the building and should in no event be connected unless it was in charge and under control of the superintendent of fire alarm telegraph, and unless private boxes are used exclusively for this system it should be under control of this official. I am of the opinion that private boxes should be

insistel on by the fire department authorities; such being the case there would be no opportunity for a divided responsibility for the success or failure of the system. If the system is not properly connected to the fire alarm box after an alarm has been given the responsibility for such neglect should be placed on theperson who has sole charge of it.

As a rule I do not think an auxiliary circuit should include more than one building, but where one or more are grouped together and owned by one person, firm or corporation, they might be included, but that portion of the circuit connecting the several buildings should be constructed with greatest care; insulated wire should be used, and the insulation protected from mechanical injury and the action of the elements.

The matter of connecting auxiliary fire alarm systems to a thermostatic cable has been discussed to some extent, the cable to be carried around the building particularly where fire would be likely to occur, and it has also been proposed to put it between floors and ceilings and in hollow partitions. This cable is so constructed that one of the wires fuses at 135 degrees of heat, and the outer insulating covering being impregnated with soldering flux 135 degrees or more, would solder the two circuit wires together and close the circuit without human agency. While it may be possible to do this, yet it is a matter that should receive very careful consideration before the attempt is made.

School houses. churches, theatres and other places of amusement, hotels, apartment house, large mercantile establishments, and manufacturing establishments might be equipped with thermostatic cable and much valuable time saved thereby in case of fire; but in order to make it of any real value the same care must be exercised in its construction and maintenance, as is taken with a first class municipal fire alarm system. Unless this is done it will surely retard rather than add to the efficiency of well organized fire departments. Many of the class of buildings here mentioned are already equipped with automatic fire alarm systems.

Automatic fire alarm systems are in no case, I think, connected directly to municipal fire alarm systems, but the department houses or that portion of them in the vicinity of the buildings equipped with the thermostats of the automatic system are connected therewith.

There are two systems, the central office and isolated; both, however, use some form of thermostat for automatically closing the circuit when the temperature near them rises to 135 degrees Fahr. These thermostats have been brought to a high state of perfection, and they seldom fail to act promptly if given the attention they should receive, and they need less than any other portion of the system.

The central office system, which is used almost exclusively in the large cities, will first receive my attention, and I will take as an example that used in the city of Boston, as others differ from it only in detail.

From the central office, which does not differ very much from that of a municipal fire alarm system, goes out main circuits connecting the several buildings that are equipped with thermostats; this circuit traverses the different portions of the buildings, while another wire runs parallel with it, but does not go beyond each particular building; these two wires are separated about two and one-half inches from each other, and between them the thermostats are placed at intervals of about 10 feet and each pair of wires are separated from each other the same distance so that each thermostat covers or guards an area of 100 square feet: the main circuit wire and the local circuit wire that runs parallel with it traverse the entire building, each local wire being confined to one building, while the main circuit wire leaving and returning to the central office passes through several; this latter might be considered one continuous metallic circuit; at the central office it is connected to a pen register, relays, bells and annunciators, much the same as a municipal system. One end of the local wire in each building is connected to a signal box in the building, thence to the ground; this signal box contains an electro-magnet that controls the mechanism that operates the signal wheel; one side of the main battery is connected to the main circuit wire which is continuous like a hoop, while the other side is connected to the ground. Should a fire occur under one of these thermostats a contact is made in the thermostat between the main circuit or battery wire and the local or box wire, current then flows from the main battery through the thermostat to the local wire to the box, energizing the magnet which sets the box in motion and thence to ground; the box number is registered on a pen register in the central office and sounded on a small gong, the operator immediately sets the hands of a three dial repeater to the box number, the necessary switches are thrown to connect the tapper circuit running to the department houses nearest the building from which the alarm came.

Owing to the peculiar construction of this main battery circuit the danger of failure due to broken wire is reduced 100 per cent. If a fire occurs in a building that comes first on the circuit current flows through the thermostat to the local wire and to ground, the wire beyond that building might be cut yet it would make no difference, the alarm would be sent out from the box in the building, in fact the current has two paths to travel over, this wire from the battery to the thermostat to the ground, and if one of these be closed by reason of a broken wire the other one is left open, current flowing in theopposite direction to reach the thermostat box, register and ground.

This principal is also applied to the local circuit, so that one break in that wire will not prevent the sending out of an alarm when the thermostat is closed. In addition to the main battery there is a testing battery which is automatically looped in to the main circuits every half hour in each one of which is a relay which closes a local circuit which includes a tapper and annunciator; if there is no break in the circuit the drops on the annunciators fall, but if any one of the circuits is broken the drop connected therewith remains up. The same plan of testing is adopted for the tapper circuits that go to the department houses. In addition to these circuits there are others which run to insurance offices and other places of business as well as private houses, over which is sent out the alarms given from the regular fire alarm system, which are received at the office of the automatic company.

The method of receiving and transmitting alarms at the central office of the automatic alarm company is practically the same as at the office of the municipal alarm system, but in the former case the mechanism of the signal box is set in motion without the aid of human hands; this is done by the very element the firemen are called on to subdue; the fire kindled by spontaneous combustion, accidental causes, or by those fiends in human form—incendiaries, causes one or more of those silent sentinels, the thermostat, to awake from slumber as it were and like the faithful watch dog quickly summon human aid. They never sleep at their post, never go on a strike, are never missing on Monday morning, and smoke or fire will not drive them from their post. They are sometimes accused of crying fire when there is none, but in most cases there is a cause for their doing so.

Personal investigation and an examination of the records will show that this automatic system very materially adds to the efficiency of the fire department, by giving immediate notice of fires in their incipiency, many of which could not be discovered by human agency until they had attained such magnitude as to burst through windows and roofs. I believe that hundreds of disastrous fires could have been nipped in the bud had the premises been watched over by the seldom failing thermostat.

The principal difference between isolated systems of automatic fire alarm and central office systems is, first, that the closing of a thermostat send the alarm direct to the nearest department house; no box number is struck but the name or number of the building is shown on an annunciator drop; on the arrival of the firemen at the building an annunciator drop shows the room or floor from which the alarm came (the same as is done in the other system). The cutting of the circuit at any one point does not prevent the operation of the system, but that portion connecting the department houses is not always carefully built, there are a few installations that have a signal box in the building and strike the number on the tapper at the department house—but not many.

While as a rule these give good account of themselves they are not considered as reliable as the central office systems, but that is wholly due to lack of proper care and supervision; instead of testing the circuit automatically every half hour, it may be done by some employee of the owner, or the proprietor once a day, once a week or month, and if defects are found one or two days may elapse before a man is reached to remedy them; but all this is the fault of men and methods, not of the system. Complaint is sometimes made that they give false alarms; many of these complaints are groundless, for it is rarely that a thermostat closes without cause, many of which could be cited as coming under my own personal observation did I have time or space.

Personal observation for a number of years shows that these isolated plants are as a rule well constructed, well cared for, and certainly do not retard the efficiency of well organized fire departments. In small towns and cities where but one permanent man is employed of course they are of little real value, but when a sfficient number to man the apparatus is always present, the efficiency of that department is materially aided by these isolated plants.

The Columbus Fire Department.

If there is one department maintained by the city for the safety of its residents which the people should be proud of more than any other, it is the fire department—that organization which allows merchants and property owners to go to their homes at night with the satisfaction that the safety of their effects is carefully guarded from the devastations of that worst of all demons—fire.

The fire department, as it now exists in Columbus, Ohio, is without superior in any city in the country. The persons in whose charge its keeping has been vested have made it the height of their ambition to perfect a department the workings of which would be without friction or flaw, and it is universally conceded that they have succeeded admirably in their efforts.

The first that Columbus knew of an organization for the purpose of extinguishing fires was back along in the early fifties, when they had a volunteer department, and they are accredited with having done "valuable and valiant service in extinguishing fires." But from the equipment with which they worked it is now to be wondered at that they ever quenched a fire that had gotten any sort of a start on them.

Toward the close of the decade in question, a steamer was purchased and it was pulled by four horses. About the first real need of it was on the occasion of the great Neil House fire in '61, and then it refused to work, and many of the persons who had agitated getting the monster engine almost lost confidence in it. But in the meantime other cities were adopting the big engines and were meeting with success with them, and so it was deemed advisable, even in the face of the failure of this one particular engine, to change the fire system from a volunteer to a paid steam fire system. The matter was put before the city council and in 1865, it was decided to make the decisive change. Many of the older fire vehicles in the service were traded in on the new engines and by the close of the sixties, the department was thoroughly organized and doing a first class kind of business.

Columbus was the fourth city in the United States to adopt a steam fire system. Its predecessors were Cincinnati, first, then New Orleans and Boston in the order named. The fire alarm telegraph system followed the advent of the steam system in short order.

From that time on until the present, the department has grown not only in goodness, but also in good deeds and big equipment. At the present day, it has a total valuation of property of $462,813. This covers the calculation of every conceivable bit of property devoted to the department and its operation. There are 46 vehicles, divided into 13 engines, 13 hose wagons, 5 hook and ladder wagons and 2 chemical engines, besides fuel wagons, chiefs' carriages, etc. There are in round numbers, 25,100 feet of hose, or enough to reach from the State House to Clintonville, and there are 138 alarm boxes, besides an almost innumerable amount of private boxes and telephones.

The oldest engines in the service to-

day are engines No. 5, at Russell street house, and No. 6, at Fulton street. These were put into the service in 1889, and are in good condition now. The oldest hook and ladder truck is the one at Third street house, which has been in use more than ten years. There are three hose reels that are 18 years old, but they are used only in cases of emergency and are stationed at the houses farthest removed from the centre of the city.

In all there are 154 regular men, thirty substitutes and nine women, who have charge of washing the bedclothes. For this work they receive sixty cents per month, per bed.

But the part of the service that always attracts the most attention when there is a fire and the engines are rattling down the street, is the equine department. If the horses of the department had the faculty of so doing, they would surely have had the "big head" in the most approved manner long before this. And they would have it not without cause. When does a day pass when the horses are hitched up at noon that there is not an admiring crowd of persons in front of the doors gazing at the big lively animals, so full of animation, and passing all kinds of flattering comment while the horses stand there in all their glory with a sort of a "don't-you-wish-you-were-in-my-place" expression on their countenances?

That the horses of the department are such perfect specimens of their species is due to the good judgment of the persons who look after their purchasing. Selecting horses for the department requires great care and excellent judgment. The horse must be sound, without a blemish of any kind and between the age of five and seven years. They are bought from local horse dealers and sometimes direct from the farmers. The prices paid are usually $90 to $125.

In the first place before the horse is purchased, he is hitched up in one of the department machines alongside of one of the old horses and given a test run in order to see how he moves and to test his wind. If he is found all right he is then placed where needed, and gradually broken for the service. Some horses learn much sooner than others. Sometimes one horse is better broken in a month than others are in six months.

Horses are a great deal like men. They do better in one house than in another; that is something that cannot be explained, but it is a fact which has been demonstrated several times to the men who have had to deal with horses. It is very essential to study a horse's nature in order to break him to his work properly. What would do for one horse would spoil another, and the driver that is able to distinguish these traits in a horse always has the best team and best success with them.

The horses of the department are well taken care of. They are given from two to three hours grooming every morning, and are watered and fed regularly. After returning from a fire they are rubbed down dry and blanketed until thoroughly cooled. Days when they do not make any runs to fires they are exercised from one to two hours every day except Sunday.

Wants More Men and More Money.

Fire Chief Joseph Parris, of Washington, D. C., has submitted to the district commissioners his estimates for the support of the fire department for the next fiscal year. The chief recommends that his salary be increased from $2,000 to $2,300 per annum, and asks for four assistant chief engineers at $1,380 each, the present number being two, at $1,200 each. The salary of the clerk he recommends should be increased from $900 to $1,200, and that of the fire marshal from $1,000 to $1,150. He also recommends that the salary of the machinist be increased from $1,000 to $1,500.

The present strength of the fire department consists of fourteen steam engine companies, two chemical engine companies and four truck companies. The current district appropriation act provides for two additional truck companies and one chemical engine company. Chief Parris recommends that the department be still further increased by the addition of four steam engine companies, two truck companies and a combination chemical and hose company.

The chief asks for eight additional watchmen, making the total number twenty-three, one for each house of the department, including the three yet to be erected, and recommends that their pay be increased from $600 to $690 per annum. The pay of the twenty-three foremen, he says, should be increased from $1,000 per annum to $1,150, recommending the same increase in the pay of the fourteen engineers. The pay of the tillermen, firemen and hostlers, he suggests, should be raised from $840 per annum to $966, and that of the privates from $800 to $920.

Merit System for Firemen.

An ordinance has been introduced in the Baltimore, Md., council which, if passed, will place the fire department of that city strictly on the merit system.

The ordinance provides for a board of examiners to consist of the president of the board of fire commissioners, the chief engineer and one outsider to be appointed by the mayor. The board is to examine all applicants for positions in the fire department and also to keep a complete graded list of all members of the department. Appointments and promotions must be made from the lists by the selection of one of the three best graded men thereon, and no appointment is to be legal unless the examiners certify that all the rules have been complied with. The ordinance is very complete and prescribes the methods of examination in full and also prohibits the introducing of questions of politics or religion.

Under the terms of the ordinance the only position not covered by this merit system will be that of the chief engineer. In regard to this position the suggestion is advanced that it would be for the best interests of the service if it was made a life office, or one to be held during good behavior. The chief would then practically be out of poitics and with his influence removed could make a very valuable member of the board of examiners.

As both President Cathcart, of the fire board, and Chief McAfee are in favor of the merit system, it is very likely that council will pass the ordinance.

St. Joseph Fire Department.

The report of P. P. Kane, chief of the St. Joseph, Mo., fire department, for the fiscal year recently closed, shows:

There was apportioned for salaries, $46,000, from which there was expended $44,519.33. There was apportioned for fire expense $6,000, from which there was expended $4,866.31, leaving an unexpended balance in all funds of $2,614.36.

The present force consists of one chief, one assistant chief, eight foremen and forty firemen. There are nine fire houses, twenty-eight horses and 12,500 feet of hose.

There is now in service four two-horse hose carriages, four two-horse hose wagons, one chemical engine, one aerial hook and ladder truck, one 55-foot water tower, two chief's buggies; in reserve, two steam fire engines, one two-horse hose carriage, one two-horse hose wagon, one chief's buggy, one hand reel in South Park, one supply wagon.

There were 222 fire alarms during the year, this being 22 alarms in excess of the former year, of which 131 were alarms with losses. The loss on buildings and contents was $38,955.00; insurance on same, $1,505,020.00; insurance over loss, $1,466,865.00. Fires in brick buildings, 87; wooden buildings, 135; number of fires confined to buildings in which they originated, 214; extended to adjoining property, 8.

New Jersey Firemen's Association.

The twenty-seventh annual convention of the New Jersey State Firemen's Association was held at Long Branch last month. In his annual report, President Bird W. Spencer dwelt at length on the State Firemen's Home, which is nearing completion. The president said that the cost of the Home, when completed, would amount to $62,626, of which $16,000 remained to be paid off this year in order to leave the Home clear and free from debt. The following officers were elected for the ensuing year: President, Bird W. Spencer; vice presidents, W. F. Frost, John S. Rogers, G. D. Vanderveer, J. G. Baird, J. J. Dupey, W. C. Astley, John Leek and E. K. Adams; secretary, Horace H. Brown; assistant secretaries, William Exall and T. H. Johnson; treasurer, John McKiernan; financial secretary, George T. Everitt. Salaries were fixed as follows: For counsel, $1,000; for auditor, $500; recording secretary, $350; treasurer, $250; financial secretary, $150. Atlantic City was chosen for next year's meeting.

Firemen's Leave of Absence.

Chief McAfee, of the Baltimore fire department, has decided to recommend to the board of fire commissioners that every man in the department be allowed hereafter two additional periods of absence each of 12 hours during every month. The men in the department are at present allowed three periods of absence of 24 hours each every month. Under this new plan, if the board sees it fit to adopt it, the men would practically get another full day off every month. It would be better than a day off, however, for Chief McAfee's recommendation will be that the extra 12-hour periods be allowed at night.

The Gamewell System.

The Gamewell Fire Alarm Telegraph Company, of New York City, had a very fine and complete exhibit of fire alarm telegraph apparatus, and gave a practical demonstration of some very important improvements for the information of the delegates at the Syracuse convention of the League of American Municipalities. The new non-interference successive fire alarm signal boxes excited a great deal of interest on the part of the delegates, and they were very much interested in the demonstration of their utility and perfection in operation. These boxes are so arranged that when two or more are pulled for fire at any time on one circuit all such boxes will transmit their signal

in consecutive order and no alarm from any box is lost, a feature that does not exist in the operation of the fire alarm boxes in general use. The method of protecting fire alarm boxes from abnormal currents was also exhibited and the security of the devise applied to the Gamewell fire alarm boxes seemed to be most reliable and yet very simple and perfect.

The Gamewell company also exhibited a new keyless fire alarm box, so arranged that when a citizen merely turned the outside handle the alarm was communicated to the fire department, without the citizen knowing he has done so, and then a local alarm attached to the box would ring. This arrangement prevented a mistake on the part of the citizen, which has happened in the use of keyless boxes without this accomplishment.

A very interesting feature in the Gamewell exhibit was the demonstration of the auxiliary fire alarm telegraph system, the object of which is to enable a factory or other place provided with it to reach out, so to speak, without any delay, and touch off the nearest fire alarm box, in that way saving the very important matter of the loss of time in leaving the premises on fire to go to the nearest box. The system is so arranged by the use of thermostatic wire, the burning of a floor, wall, or other parts of the premises will so effect the wire that the auxiliary system will operate automatically and communicate the fire alarm to the fire department, in the way described above.

One of the most important systems exhibited by the Gamewell Company was the demonstration in the operation and control of storage battery system used for fire and police telegraphs. The controlling switchboard exhibited by the company was furnished with automatic devises for the complete protection of this important part of the storage battery system and the perfection of its operation. The control of the various parts of a fire alarm telegraph was most complete, and a very great deal of interest was manifested in its use. The Gamewell company operated all of their apparatus from storage cells and showed this important part of a fire alarm telegraph in actual operation.

Fire Department Notes.

—Parker Downs has succeeded William Kipp as chief of the fire department at Rensselaer, N. Y.

—A. H. Scott has been elected to succeed J. E. Moffett as chief of the Clinton, Ill. ,fire department.

—Thomas N. Worm has been appointed assistant chief engineer of the fire department at Peoria, Ill.

—Thomas J. Robinson has been appointed chief of the fire department at Chester, Pa., succeeding William Cregan, deceased.

—At the annual meeting of the Catskill, N. Y., fire department last week these officers were elected: Zobles T. Cater, chief; Michael T. Foley and Henry R. Hinman, assistants.

—Without having been asked to do so the board of fire commissioners of Syracuse, N. Y., have increased the annual furlough of members of the fire department from ten to fifteen days.

—President Quigley, of the International Association of Fire Engineers, has named the following chiefs to serve with himself and Secretary Hill upon the executive committee of the association: A. C. Hendricks, New Haven, Conn.; Robert Blackburn, Oswego, N. Y.; Robert Kiersted, Newark, N. J.

—Youngstown, Ohio, now has a complete and up-to-date fire alarm and police signal system. The installation of the system has just been completed by the Gamewell Fire Alarm Telegraph Company.

—Fire Chief Schneider and Foremen Howard LeRoy and Lewis Asay are seeking plans and specifications for a new fire house for the use of the Neptune engine and Cook hose companies, Asbury Park, N. J.

St. Joseph Light Plant Report.

The annual report of W. C. Stewart, city electrician of St. Joseph, Mo., shows that the net operating expenses of the municipal lighting plant for the year amounted to $21,274.98. As 369 lamps were burned during the year, the cost per lamp, for the operating, was $57.65. The lamps are of 2,000 c. p. and burned 2,419 hours. There is nothing in the report to show the cost of the plant or upon which to base a calculation of fixed charges.

Items of Interest.

—At Lowellville, Ohio, the proposition to establish a municipal electric lighting plant was submitted to a vote of the people and defeated.

—Dr. Ohage, health commissioner of St. Paul, Minn., has asked the public to donate $8,000 for the establishment of free municipal baths.

—S. E. Greene has petitioned the mayor and board of aldermen of Birmingham, Ala., for a franchise to construct and operate a new street railway in that city.

—City Engineer T. Hoffman of Crawfordsville, Ind., writes that his city will on October 18 let contracts for the construction of 2,400 feet of brick sewer in Green street.

—H. A. Rugh, Harry Thomas and Harry Furtwangler have been granted the right by the city council to build and operate a garbage crematory at Greensburg, Pa. They will collect and dispose of the garbage by private arrangement made with house holders.

—The contract for the paving of the business district of Ripon, Wis., was let September 23 by the common council to John Fife of Oshkosh for $20,536, and it is announced that the work will be commenced at once. The vitrified shale brick manufactured at Brazil, Ind., will be used in the work.

—D. W. Mead, the engineer who planned and constructed the new water works pumping system at Rockford, Ill., and whereby that city now has a daily supply of over 7,000,000 gallons of water, has asked the city council for $5,000 in addition to all the bonus earned by the success of his system. The claim is made because of the extra expense incurred by Mr. Mead in surmounting obstacles not to be foreseen when the job was begun.

—It is the intention of the park commissioners, of Baltimore, Md., to place hot houses in Patterson and Carroll parks for the propagation of plants for the parks and city squares. It was estimated in the office of the park board that at least $2,000 could be saved the city every year by the propagation of its own plants, and at the same time provide a larger and more varied collection of flowers and growing plants. At present the bulbs for costly plants are bought in Germany and other portions of Europe.

ASSESSMENTS FOR LOCAL IMPROVEMENTS.

[Full text of an address delivered by Hon. John B. Weakley, Jr., Mayor of Florence, Ala., before the convention of the League of American Municipalities, Syracuse, N. Y., Sept. 19-22.]

For me to attempt to instruct this audience on the subject of street improvement would be like carrying coals to Newcastle.

Coming as I do from a section of the country known everywhere for its conservatism, and for its apparent hesitation in adopting new ideas, it will probably not surprise you when I say that it was only in 1890 that the supreme court of Alabama sustained the right of a municipality to levy an assessment for local improvements. Like conclusions have been reached only recently by other courts in the South. Indeed, the supreme court of South Carolina, in a very vigorous opinion rendered so late as 1895, reiterating a former decision of that court, declared that: "The general rule (of taxation) knows nothing about * * * assessments for benefits, * * * Existence of persons or the possession of property, and not the supposed benefits, being the true guide to taxation." It is gratifying to note, however, that the learned judge who rendered the opinion was willing to sustain an assessment for building a sidewalk and drain, upon the ground that it was a lawful exercise of the police power vested in the municipality, though every other character of local improvement was placed under the ban of his disapproval.

All governments are given the right of taxation in order that they may be sustained, and the people of the state, in framing the constitution, likewise retained in themselves for the benefit of the public the right of eminent domain, or the right to take private property for public use. It is everywhere declared in our state constitutions that there shall be equality of taxation, and that private property shall not be taken for public use without just compensation. The right of taxation and the right of eminent domain are both essential to the existence of any government. Compensation must be made when money or property is taken in either way.

The taxpayer receives his equivalent in the protection which the government gives him and his property, and by the increase in the value of his possessions by the uses to which the government applies the money raised by taxation. The duty to pay taxes rests upon every member of the community unless exempt by law. In order, therefore, to sustain special assessments for public improvements the courts were first called upon to decide whether the act of levying an assessment was the exercise of the right of eminent domain or of the taxing power, and, if the latter, was an assessment a tax.

It is manifest that in the building of a sewer or paving a street there is no taking of private property, and assessments levied for these and similar purposes cannot be sustained under the law of eminent domain.

In the limited time at my disposal I have not been able to trace out the growth of this law from its beginning. It seems to have had its birth in the necessities of the public, and it has been nurtured and fostered by the decisions of all the courts of the country. In the rapidly growing and populous city of the North, so great has been the demand for public improvements, and so rapid has been the accumulation of wealth, it was an easy matter for the courts to decide that a local assessment, while in a certain sense an exercise of the taxing power, was not itself a tax, for the reason that compensation was made to the owner in the enhanced value of his property by reason of the improvement, and the assessment was regarded as an equivalent for a benefit to his lands.

While the judges and courts of the South were trying to uphold and support the constitution of the United States and of their own states against this new form of taxation, as is manifest in the earlier decisions on the subject, the courts in other parts of the country were stretching and construing the constitution to meet the demands of a growing country and an advancing age.

When in the course of time the accumulated opinions rendered in cases originating in the large cities of the country were lined up in front of the fortifications which our courts had built around the constitution, the result was that the court of South Carolina alone refused to surrender.

It is a singular fact that the only state in the Union which has no divorce law and knows no divorce court places this great impediment in the way of the improvement of streets; and thus it happens that, in the limits of the state of South Carolina, mismatched couples literally have a rocky road to travel.

With this single exception I believe it is now everywhere conceded that municipalities have the power and authority, when granted by the legislature, to make local improvements and levy special assessments to pay for the same. And the principle which at first sustained local assessments for streets and sewers, now upholds assessments for almost every betterment that can be devised for the comfort and happiness of the citizen. The development of the law has been rapid and complete; numerous statutes in many states, framed by experts in municipal law in accordance with the decisions of the courts, cover every phase of the law of local improvement; and in reading over the pages of the law books hunting for some subject yet open for discussion, one is forced to the conclusion that the law of special assessments is so well settled that there is nothing left to discuss.

It is not my intention to make a constitutional argument to show that such assessments have been correctly sustained, nor do I propose in this presence to discuss the finely spun theories of the judges who have written down in the books the law on this subject. Such a paper would doubtless be of interest to a convention of city attorneys, or a bar association, but would be extremely dull reading for this assemblage. Executive officers will be more interested in the details of the laws they are required to execute, and this paper will be largely confined to that branch of the subject.

There is no right which the average American citizen holds so dear as the right to be heard; whether it concerns his property rights or his personal rights the privilege of free speech is dear to him, and I have always held that the property owner should in the beginning be given an opportunity to express himself before the city council prior to the inauguration of any improvement the cost of which is to be assessed to him or his property.

In beginning any improvement, maps, plans and specifications should be prepared by the city engineer, showing the nature and extent of the work, and the character of the material to be used, together with an estimate of the cost. These plans should remain on file in the engineer's office, and notice given to the public so that property owners might examine them before the work was ordered done. It will sometimes and frequently does happen that this opportunity for inspection by the property owner affords him a chance to have alterations or amendments made in the plans that may result in less injury to him, and save the city from troublesome litigation over claims for damages. The propriety of giving the property owner a voice in determining the character and extent of the work and the material to be used will admit of no discussion.

After this preliminary step a time should be fixed for the passage of the final resolution, when the objections of the property owners may be heard. At this juncture arises an interesting question: Should the power to determine whether or not to make an improvement, the cost of which is to be assessed in whole or in part against the abutting property, be vested absolutely in the city council, or should a majority of the property owners decide? Either plan is liable to serious objection; a majority of the property owners on any street might effectually tie the hands of the council, if they were allowed to decide such matters; and on the other hand a council with absolute power, owning no property in the district to be improved, and paying no part of the assessment, might be influenced to contract for public improvements that would bankrupt the property owners.

Being called upon a short time since to prepare a street improvement law, and considering this question in all its phases, I reached the conclusion that no improvement should be made, the cost of which was to be paid by the abutters, if a majority of the owners, after seeing the maps and plans, objected thereto, unless the council by a two-thirds vote, approved by the mayor, ordered the work to be done, notwithstanding such objections. This rule will protect the property owners, and it will also prevent combinations by them to defeat improvements which the public welfare demands.

The practice of letting such work out by contract to the lowest responsible bidder prevails so generally in the cities of the country that I will not venture to suggest any other plan. I feel that I would be going beyond the scope of this paper to argue this question, and particularly so in view of the fact that it will be discussed at length at this meeting. I cannot, however, refrain from saying that those of our friends who believe so strongly in the ability of our municipal governments to manage and direct public utilities, can find abundant reason for demanding that all works of public improvement be done by the city under the supervision of its engineers and overseers, and that the property owner be assessed with the actual cost of the work.

Governments are framed primarily for the protection of the life and the preservation of the property rights of the citizen, by the enactment of laws and the execution of the same. Municipal governments have a wider scope, and while they are charged with the duty of preserving the peace and protecting property, they are required to see to it that the streets and thoroughfares are kept safe for travel on foot or in vehicles; that they be kept properly lighted, swept, cleaned and sprinkled; that the inhabitants be supplied with water, that sewers be built, and that the public health be preserved.

A question most difficult of solution is how much of the cost of such improvements should be assessed to the property owner under the name of betterments, and how much should be paid out of the general treasury. I believe every fair-minded man will admit that a well-paved street, particularly if it is one of the main thoroughfares of the city, is used as much by the general public as by the residents. Suppose the case of two parallel streets, the one paved, and the other not. We will find that vehicles will travel the smoothest road, and pedestrians will shun the pitfalls of the unimproved thoroughfare, and thus the paved street bears a double burden. If all the streets were paved it would be just and equitable to make the property owner bear the whole cost of the improvement in front of his property; but then, again, if all streets were improved alike there would be no need for local assessments, for the improvement being general in its character could be paid for out of the general funds.

Sometimes a street by reason of its situation is selected by the council as a boulevard or driveway, and some extraordinary improvement is made upon it; it is clear to see that a portion of such improvement should be paid out of the general funds. Other cases might be cited; instances of this kind must be familiar to you. The most equitable division of this burden of street improvement between city and citizen which I have seen practiced is for the city to pay out of the general funds one-third of the cost of local improvements, and assess the remainder equally to property owners on either side of the street.

There may be variations of this rule when the street is occupied by a railroad, a custom obtaining in many cities requiring the street railroad company to pave the space between and two feet on each side of the tracks.

In lieu of this contribution toward the paving of the streets, it sometimes happens that cities pay the cost of paving the intersections, and the property owner is assessed with the cost only of the improvement of his frontage. On the other hand, acting upon the theory that the property owner has title to the land in the centre of the street, corner lots have been made to bear the cost of one-fourth of the intersections, the authorities assuming that such lots, having the advantage of two approaches, are benefited to that extent more than those adjoining.

Mr. Elliot, in his excellent work on Roads and Streets, says:

"The system which leads to the least mischievous and unjust consequences is that which takes into account the entire line of the way improved, and apportions the expense according to the frontage, for it then takes into consideration the benefit which each property owner receives from the entire improvement."

No system can be devised which will be entirely just and equal in its operations, but that system which takes into consideration the entire improvement is likely to reach the best results. Following out this rule, each property owner on the street, whether he owns a corner lot or one in the centre of the block, would pay his proportion of the cost of the intersections. Then it would be eminently just for the property fronting on the intersecting street to pay one-half of the cost of the intersections, and this amount should be assessed to the lots extending to the centre of the block on either side of the improved street.

As the authority to make local improvements does not exist unless conferred by the legislature, it necessarily follows that where the mode in which the authority shall be exercised is prescribed by the legislature, that mode must be followed, and this rule will determine the method of assessing the intersections as well as the method of assessing for the general improvement.

It has been decided by the courts that assessments may be made according to the superficial area, according to the frontage or according to the benefits received by the abutting property.

Although frontage assessments have been sustained by many courts of eminent respectability, yet, in view of the fact that the only way in which local assessments can be sustained at all, is upon the theory of enhanced value and benefit to the land, it follows that the most equitable method of apportioning the cost of local improvements is that by which each piece of property, after being viewed by assessors appointed for the purpose, is assessed according to the benefits which such property receives from the improvement.

As one who has had experience in such matters, I assert that it is impossible to grade a street, put in curbing and build sidewalks, without inflicting damage to some lots along the line of improvement, either by lowering or raising the grade of the street. The property owner thus aggrieved will protest against the payment of any part of the cost of the improvement, and moreover he will sue the city for damages unless his demands are complied with; that is, he will threaten to do so. It is right and proper that such claims be adjusted, but should the expense thus incurred be assessed against the remaining property, as part of the cost of the improvement, or should it be paid out of the general funds of the city? If the change in the grade of the street is for the benefit of the general public more than for the benefit of the property immediately contiguous thereto, then it should unquestionably be paid out of the city treasury; but if the damage is caused by local demands for the change in grade, then it should be considered as part of the cost of the improvements, and so assessed.

The correct rule, it seems, in this, as in all other cases, is to assess each lot according to the benefits it will derive from the improvement, and the residue of the cost should be paid by equal and uniform taxation. In the event such damages are assessed as part of the cost of the improvement, to ascertain and fix the amount that each person deriving benefit by the improvement shall contribute to compensate for the loss sustained by those who are injured, a disinterested commission should be appointed to report under oath both the amount of the injury sustained and the benefits received by each lot on the street.

It is very easy to conclude from the nature of the improvement that the assessment must be levied against real estate; it cannot be levied against personal property, and it cannot be levied as a personal charge against the owner of the land. If the owner should refuse to pay the assessment, and the property should be so sold to enforce its collection, and at such sale did not realize enough to pay the charge, the balance cannot be collected from the owner, nor can an execution be levied on other property to compel its payment. As the law books have it, a special assessment is a proceeding in rem, and not in personam. Judge Cooley says: "If the owner can have his land taken from him for a supposed benefit, which, if the land is sold for the tax, it is thus conclusively shown he has not received, and he is then liable for a deficiency in the assessment, the injustice, not to say tyranny, is manifest. But such a case is liable to occur if assessments are made a personal charge."

All of the courts in discussing the law of special assessments have drawn an important distinction between "taxes" and "assessments." In the law these words have a vastly different meaning; it was necessary to make this distinction in order to uphold special assessments. The decision of the courts on this subject also carried with it the decision that property exempt from taxation was not therefore exempt from the payment of assessments for improvements.

While the books are full of cases in which it is decided that schools, churches, hospitals, cemeteries and the like can be assessed for local improvements, there is some division of opinion as to whether or not the property of counties and municipalities used for governmental purposes should be so assessed. In Illinois it is decided that a county court house can be assessed, and the same court decided that the real estate of a city can be assessed, but in such cases the property of the county or city may not be advertised and sold like the property of the individual, but the amount of the assessment should be paid out of the general funds.

We are all familiar with the method of paying street assessments in installments, and the issuance of bonds in anticipation of the collection of the assessments. Sometimes these bonds are obligations of the city; sometimes the only security is the lien on the property improved. Those who have had experience in such matters know that improvement bonds are sometimes difficult to sell, and that when they are sold they generally bear a higher rate of interest than the ordinary municipal obligation, and if the contractor takes them

in payment of the improvement he generally adds a fair margin of profit to the amount of his contract to cover any loss he may sustain by handling the bonds.

At the risk of trespassing upon another subject of discussion, I take occasion to say that when an improvement is to be made, the cost of which is to be paid in installments, the city should first issue its own obligations, if the money can be raised in no other way, and that the cost of the work be paid for in cash on its completion, whether it be done by the city under the supervision of its own officers or whether it be done by contract. The deferred assessments would then form a sinking fund for the payment of the principal and interest of the bonds as they fall due.

Men first congregated in villages for their personal safety; give a man a home, and he soon begins to accumulate property, and the government of the village which first was required to protect only the life of the inhabitants was soon called upon to create tribunals for the determination of their property rights. Very early in the development of municipal government the duty of providing safe thoroughfares was assumed; as the communities grew in number and size, and the wants of the public increased, it became necessary for the public safety to light the streets by night. The public health demanded that the people be supplied with pure water and sewerage, and these and other public services which the people from time to time demanded were all paid for out of the general funds raised by taxation. While the laws of special assessments for local improvements were known in England years ago, and acts have been passed by parliaments authorizing such assessments, the growth and development of the law has been in this country, where a nation of city builders are not content to wait on the slow process of building public improvements out of the general revenues of the cities. Assessments have now been sustained in the various states for building streets, curbs and sidewalks, for laying water mains and sewer pipe. In some jurisdictions the cost of sweeping, cleaning and sprinkling the streets has been assessed against abutting property. Assessments have also been made for removing snow and ice from the streets and sidewalks; parks and boulevards have been laid out, and the cost assessed to the adjoining property. Marshes and ponds have been drained, and the land benefited has been made to bear the burden. Along the banks of the Mississippi river districts have been laid out and levees built to protect them from overflow, the cost of construction and maintenance being paid by an annual assessment of one dollar a bale on all cotton raised in the district. Numerous other instances might be mentioned, but these are sufficient to show the elasticity of the law, and the stage that has been reached in its development.

What restriction, if any, should be placed on the municipalities in the exercise of this power over the purses and property of the citizens?

Arguments will be made at this meeting to add to the duties of municipalities by the operation of public service industries. Experiments have been made already; the public water supply was the entering wedge, and municipal lighting plants add strength to the argument in favor of municipal ownership.

Like unto the proposition gravely stated and ably argued a few years ago, that the federal government should own all the railroads and telegraph lines in the country, and should establish sub-treasuries at all important points where money should be loaned on agricultural products, is the new proposition that cities should own the street railroads and telephone systems, and should establish municipal pawnshops where every free-born American citizen could be his own "uncle" at the extremely low rate of one per cent. a month!

If our municipalities are to assume these new burdens, the law of special assessments will take a long step forward, and we may expect to see gas and water mains, electric light wires, telephone lines and street car tracks extended and built at the cost of the abutting property owner. I ask you, gentlemen, where is it going to stop?

It has been said that the power to tax is the power to destroy; it may also be said that the power to assess is the power to build up, to create. The state in the exercise of either power takes from the citizen a portion of his property for his own and the general good. How much shall be taken, and for what purpose it shall be taken, is a serious and ever-present question.

In nearly every state of the Union there is either a constitutional limit on the debt-creating power of cities, or a constitutional limit on the rate of taxation. Should there not be a like restriction on the power of cities to assess for local improvements? I ask you the question.

Notes.

—Last year the city of Scranton, Pa., spent only $26,000 for improvements in sewers and pavements. This year $250,000 will be expended.

—Newark, N. J., has contracted with the Manchester Locomotive Works for a very latest improved second size Amoskeag steam engine.

—The Seagrave Company shipped recently to Leadville, Col., one large sized combination hose wagon and chemical engine and also one of their noted No. 8 full trussed hook and ladder trucks.

—Dr. J. R. Trovinger, mayor of Arlington, O., engaged in a fight with one of his fellow citizens the other day, whereupon he had himself arrested and fined himself one dollar and costs, which he promptly paid.

—Holland, Mich., has ordered from the Seagrave Company one of their up-to-date hose wagons, equipped with Seagrave trussed ladders, and one of their latest improved combination chemical and hose wagons.

—The police department of the city of Wilkes-Barre, Pa., upon the suggestion of Chief Kline, has adopted the permanent heat system. The chief proposes, in the near future, to install the Bertillon system for the identification of criminals.

—Seagrave hook and ladder trucks, with trussed outfits, have lately been purchased by Los Angeles, Cal.; Greenfield, Mass.; Grand Island, Neb.; Evans City, Ind.; Girard, O.; Eldora, Ia.; Bartlett, Tex.; North Tarrytown, N. Y., and Columbus, Neb.

—The Seagrave Company, Columbus, O., have just accepted an order from Dawson City, Alaska, for delivery within thirty-six working days, for one latest improved full trussed hook and ladder outfit, complete, and also three large-sized hose carts with chain reeling attachment.

—The fire departments of St. Louis, Mo.; Louisville, Ky.; Forest, O.; Shelbyville, Ind.; New Albany, Ind.; Kingston, Ont.; Chatham, N. B.; Pierz, Minn.; Delaware, O., and Grand Forks, B. C., have recently purchased and put into service the celebrated Seagrave trussed ladders.

—New Orleans, La., has contracted with the Manchester Locomotive Works for three more of the latest improved Amoskeag steam fire engines. This order makes a total of five Amoskeag engines contracted for by that city since Feb. 1 of this year, including the famous horseless engine with a guaranteed water capacity of 1,350 gallons.

—Street Commissioner Hendler of Wilkes-Barre, Pa., is not of the dilitante class. He is always on hand at the beginning of the day's work and remains to the finish. Being a practical man, the city fathers have acted wisely in purchasing a plant for his use in repairing the asphalt pavements. This season Mr. Hendler's force has laid 4,700 square yards of pavement at a saving to the city of $2,115, as compared with the price charged by the Barber Asphalt Co. From $1.50 to $2.25 is paid for ten hours' labor.

—A. W. Dolfini & Co., 140 Nassau street, New York, have just issued a catalogue of the numerous fire department supplies they manufacture. The catalogue is issued in the best style, the text, the illustrating and the printing being of the highest order. Every fire department should have a copy of it.

PUBLIC LIBRARIES.

(By E. O. Randall, of Columbus, O.)

In 1850 it was calculated that there were 800 public libraries in the United States, containing 100,000 volumes. To-day, statistics estimated from the last report of the United States Bureau of Education, show something like 10,000 public libraries in the United States. By this we mean college, school (private and public), state, libraries of societies, and indeed all libraries to which certain classes of the public are admitted; but it does not include Sunday School libraries. These 10,000 libraries contain some 40,000,000 volumes, and some 20,000,000 pamphlets. Probably this represents an issue to borrowers during the year of over 200,000,000 books, or three books during the year to every one of the population. These figures do not take into account the consultation of books, as reference, in the library rooms. Nor does it include any statistics concerning the reading-rooms where newspapers, magazines and current periodicals are provided and placed for the perusal of the library patrons.

In Ohio, of the 2,000 communities in number, having a population of 300 or more, not more than 12 per cent., or 250, have a collection of books deserving the name of a public library. These libraries contain in round numbers some 2,000,000 books, and 500,000 pamphlets.

In Massachusetts there are 500 public libraries, containing 7,000,000 books, and 1,500,000 pamphlets. In New York 600 libraries, with 7,000,000 books, and 1,000,000 pamphlets. The New England States, which are supposed to be the most bookish and densely literary of the country, have in their public libraries about one book to every person. Ohio has one book to every two persons. The Southern States possess volumes in their libraries in proportion to the population in exact ratio to the statistics of illiteracy—those least literate, as Florida and Georgia, have only one book to every ten persons.

If correctly informed, in 1898 Cincinnati had about 400,000 books in her public libraries; Cleveland, 250,000; Columbus, including the state library, 200,000. In other words, Cincinnati has a volume for every inhabitant; Cleveland one for every two-thirds of an inhabitant, and Columbus one and one-half volume for every member of the population. In the year 1898 estimates suggest that about eight hundred public libraries were supported by taxation, and the amount raised for that purpose in that way was, in round numbers, $2,000,000. The amount appropriated for some 800 more of the public libraries by state, county and city legislaton, was also some $2,000,000.

The Swiss statistician, Albert Schintz, recently reported that the United States contributed annually five times as much

for public libraries as does any other nation in the world, and spends annually as much for educational purposes as do England, France and Germany combined.

These figures, though not absolute, are sufficiently accurate to attract your thoughtful attention to the importance and prominence of the public library in our social and intellectual life.

The first free library established in England was in 1653. Not until 1893 did Parliament pass the famous bill by which "any local authority" (that is town council or district board), "save in the county of London, may establish and maintain public libraries without reference to the wishes of the rate payers."

Parton, in his "Life of Benjamin Franklin," ascribes to that distinguished American statesman the honor of establishing the first American subscription library, in the year 1731, in Philadelphia. A librarian was appointed, and the library was open once a week for the giving out of books. The second year Franklin served himself as librarian, and Poor Richard printed, upon his own press, a catalogue of the books. The number of subscribers slowly but steadily increased, and libraries of similar character sprung up, not only in Philadelphia, but all over the county. Franklin's library was begun by a few mechanics and clerks, illustrating and indicating the true purpose and field of a public library. These subscription libraries soon extended their issue to others than the subscribers, namely, to any one who would put up a pledge for a book. Franklin's library was finally quartered in the State House ,the famous Carpenter's Hall, in which met the first Continental Congress.

The library was a famous factor in the early history of Ohio. It is claimed that the first Buckeye library of which we have any authentic account was the Putnam family library of Belpre ,as early as 1795. It was at first the private library of General Israel Putnam, being his share of the estate from his distinguished father and namesake. Later this library became a public one, and by payment of small subscription any person was entitled to the use of it. In the biography of the elder Thomas Ewing is an entertaining account of the establishment, in 1802, at Marietta, of the celebrated "Coon Skin Library." A number of the frontier settlers, under the leadership of Tom Ewing, clubbed together for the purpose of creating a library. Neither scrip nor coin was plenty in those days, furs were the main circulating medium, and the contributions of the members consisted of the skins of bears, wolves, coons, and the natural coverings of other four footed denizens of the forest. These Samuel Brown carried to Boston and exchanged for a load of books which he brought back to Marietta as a public library. Thomas Ewing says the books were well selected. "The library of the Vatican was nothing to it, and there never was a library better read."

The object of this article is to emphasize the importance of municipal public libraries as distinct from specific school libraries. The latter belong to the province of the Board of Education and the teachers and their maintenance is more or less amply provided for by the laws of the state, empowering certain school and municipal authorities to levy a tax to create and carry on school libraries.

The school library is a fundamental necessity in every American community. It should always exist, first and foremost. It is of course a public library. But no plea is needed for the school library. I cannot conceive of any county, city, town, village or hamlet that would not exercise every power granted it for the establishment and continued enlargement of a school library. But my plea is for a public library of a higher and broader scope than the mere school library.

The school libraries are, primarily, to supplement the work of the teachers by furnishing books that will give collateral information and instruction along the line of the text books which the pupils pursue, and, of course, in a broader way to furnish proper general reading for the pupils, stimulate their thirst for knowledge, arouse their love for literature, entertain, exercise and expand their intellectual powers.

Bear in mind that statistics reveal the lamentable fact, applicable to Ohio cities, at any rate, as shown by the reports of our city boards of education, that only about 70 per cent. of the pupils who enter the public schools, complete the primary or first four grades; only about 50 per cent. complete the grammar grade, or the first eight years; while only 10 per cent. enter the High School. And we might go further and add that only one in a thousand obtains a college education.

The necessity for, and value of, the public library, therefore, in supplementing the deficient work of the public schools, is tremendous. No factor in our social and political system is so great as that of the public library as an educational feature in fitting the citizen, not only for the highest enjoyment of life, but for an intelligent and proper use of his citizenship.

Ninety per cent. of the male portion of our citizens who, by their votes, are to elect the officers and control the affairs of our cities, state and national government, have had, on an average, but six years in the lower grades of our public schools.

The factor of education is one which is not to be ignored, and while there is a common flippant cynicism against the literary "feller;" the highly mentally embellished and culture decorated creature, as being impracticable, and unfitted by this superfine superiority for the rough and tumble tussle of existence, yet no one would dare deny the inestimable value of knowledge, or decry its power in every phase of life. Many ignorant or prejudiced people say that a college course spoils a man for practical life. I never heard or read of any one declaring that the reading of good books injured the reader, or made him less useful as a man or citizen.

It is this intelligence, if you do not like so well the word education, that makes the nation great. Say what you will, it was the trained intelligence of the German mind that enabled the armies of Von Moltke to sweep like a whirlwind, in the Franco-German War, over the fields of bright and beautiful France, and annihilate the glittering but superficial Empire of a Napoleon. We saw the same result from the same cause when little Japan, quick and alert with modern up to date intelligence, with only one-tenth of the population and physical power of her antagonist, crush the terror-stricken ignorance and impotence of the countless hordes of gigantic China—and coming to our experience—what greater lesson than that of the war with Spain? The world stood aghast at the swiftness and splendor of our success. How could it have been otherwise when we read that 75 per cent. of the adult population of Spain can neither read nor write; while the percent. of adult illiteracy in the United States is only 10 per cent.—including the untutored colored population of the South. When I appeal for the public library in the municipal community, I appeal for the citadel of American citizenship. In the days of the Roman Republic they erected a temple to Wisdom, and in that temple they sacredly kept and guarded an image of Pallas, or Minerva, the Goddess of Wisdom—that temple was the palladium of the Republic, and they believed that

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when that temple should be invaded, and its contents rifled, the Republic would fall, and it did. This belief was true. Even the fanatical Mohammedan taught that the real learning of a man is of more public importance than any particular religious opinion he might entertain. And right the Mohammedan was. If there is any one panacea for the public ills and evils, that cure-all is intelligence—for intelligence means truth and justice and virtue and power. I believe the public library may be and should be one of the main instruments towards that intelligence. We hear much nowadays of municipal ownership. It is the live topic of the times. What, if anything, shall we own in common—possess as equal co-operative proprietors? Shall it be the water works, the gas and electric plants, the street railway and the telegraph and express facilities? To all these, thus far, there are widely different opinions. But there is one subject upon which there is no dissent, but one universal approval, and that is and seems to have always been, the municipal ownership of libraries.

It is not regarded within the province of this article to enter into the form and operation of a properly conducted public library.

The books of the public library should be as universal as the vocations, needs, tastes and mental conditions of the people for whom they are supplied. Any volume that administers to the information or intelligence of the reader should be readily found upon its shelves. Acrimonious discussion arises over the extent to which the community should carry the student for the purpose of culture, or professional or technical training. To my mind this extent cannot be too great. But no one has yet been found who would limit the province of the public library in the field which its books should occupy. The catalogue should be profuse in all works which pertain to the moral, intellectual, physical, social and political well-being of the citizen. Especially should the educational feature of the public library be fostered—it should contain all those books which touch upon the topics of the day, giving history, facts, statistics and information and instruction on all the questions involved in our social and political structure—even as to the vocations, trades and professions.

It is a grossly erroneous idea that a public library is a luxury for the wealthy or cultured—that it bears the same relation to the vast reading public that a private box does to the sky gallery of the theatre. Never. The public library is the commonest level in the whole community. That very feature of it is worth its cost to a city. Seventy-five per cent., at least, of the patrons of our city public libraries are those who have few or no books at home and could not spare the means of buying a tithe of those they so freely use at public cost.

In the early days of our Columbus public library the idea did formerly find lodgment in the bulky brain of some of our city fathers—there are none such now—and sometimes in the minds of that merciless, massacring body known as the tax commission—that there was no sense (spell in both ways) in spending so much money on the public library, for the people who wanted to and could read fine books, had better buy them themselves, and not enjoy them at the expense of the over-burdened taxpayers. I remember one year when the various departments of the city were being raided more successfully than usual, the finance committee of the Council proposed to wipe out entirely the appropriation for the public library, and transfer the amount thus saved to make up the deficit in the police fund. And when I remonstrated the chairman of the committee said that the library was only an ornamental concern, of no use to anybody but literary dudes; but that the policemen had to be paid. I took the occasion to remark that if he wiped out the public library it would not be long before he would have to double the police force to look after the idle who had no books to read, and that the expense to the people for punishing the mischief-makers that that library was reforming would tenfold exceed the expenditures which that library entailed.

After an experience of sixteen years in connection with public, and school and college libraries, I am able to say that I have never known a taxpayer to raise any objection to the tax levied for free public library purposes.

Libraries cost money; so does anything worth having. It has been pointed out that crime also costs money. We spend in our cities thousands of dollars confer remedial effects on communities in punishing crime, or endeavoring to because of the commitment of crime. Why not spend more in preventing crime? I once heard the great orator,

(Continued on next page.)

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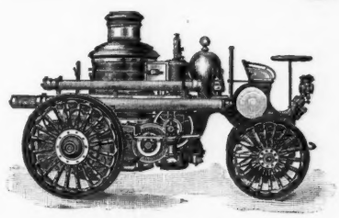

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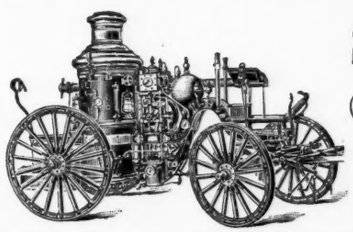

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